



Australian Government

Department of Agriculture, Water and the Environment

HOUSE OF REPRESENTATIVES STANDING COMMITTEE ON ENVIRONMENT AND ENERGY

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

**SUBMISSION FROM THE
DEPARTMENT OF AGRICULTURE, WATER AND THE
ENVIRONMENT**

JULY 2020

Executive Summary

The Australian Government Department of Agriculture, Water and the Environment welcomes the opportunity to provide a submission to the House of Representatives Standing Committee on Environment and Energy's Inquiry into the problem of feral and domestic cats in Australia.

Since European arrival, many vertebrate animals introduced to Australia have become pests, including the feral/domestic cat. Pest animals are a significant social, economic, and environmental burden for Australia, negatively impacting on Australia's agriculture, biodiversity, natural and built environment, public health and productivity (Invasive Plants and Animals Committee 2016). Feral cats take a staggering 3.1 million mammals, 1.1 million birds and 1.8 million reptiles every day. They can transmit to livestock and animals diseases that cause abortions, raise predation risks and reduce the profitability of sheep-meat farming.

The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) provides for the identification and listing of key threatening processes. The impact of predation by feral cats on threatened species and ecological communities is recognised under this legislation.

The Department's commitment to addressing the issues related to feral cats on biodiversity and primary production is being undertaken through funding via the \$1 billion National Landcare Program Phase Two, the \$50 million Agricultural White Paper and \$30.3 million Established Pest Animals and Weeds Pipeline program. Over \$3.24 million has been invested in feral cat research alone under the National Environmental Science Program.

National leadership on the management of feral cats is spearheaded by the Threatened Species Strategy's feral cat targets and supported by the identification of actions in the Threat Abatement Plan for predation by feral cats. The national Feral Cat Taskforce, chaired by the Threatened Species Commissioner, provides a forum for all governments and feral cat experts to effectively collaborate on strategies and action for both feral and domestic cats.

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Introduction

The Department recognises feral cats are a serious vertebrate pest in Australia that have severe to catastrophic effects on native fauna. Australia's native animals have evolved without the presence of mammalian predators. Their defence mechanisms, tuned to native predators, leave them vulnerable to predation by feral cats, European red foxes and wild dogs. Further, native animals are also naïve to disease-causing agents carried by cats that can be transmitted to other animals.

The first recorded instance of cats being brought to Australia was in the 18th century with feral cats spreading across the continent by the 1890s (Abbott 2002, Abbott 2008). Cats were deliberately released into the wild during the 19th century to control introduced rabbits and house mice (Rolls 1969). Today feral cats are distributed through all habitats in mainland Australia and Tasmania and on some offshore islands.

Cats are grouped into categories according to how and where they live for the convenience of human management. The definitions and categories used vary widely but the Department uses:

- *feral cats* are those that live and reproduce in the wild (e.g. forests, woodlands, grasslands, deserts) and survive by hunting or scavenging; none of their needs are satisfied intentionally by humans;
- *stray cats* are those found in and around cities, towns and rural properties; they may depend on some resources provided by humans but are not owned; and
- *domestic cats* are those owned by an individual, a household, a business or corporation; most or all of their needs are supplied by their owners.

These categories of cats are artificial and reflect a continuum, and individuals may move from one category to another (Newsome 1991; Moodie 1995).

Mitigating the threat of invasive species, such as feral cats, is not only a matter of providing better technical solutions such as improved baits for pest animal management. It also involves understanding and addressing social, legal and economic factors; for example, through supporting the efforts of private landholders, leaseholders and volunteers to manage invasive species on their lands to achieve the desired outcomes for biodiversity conservation and primary production. In addition, research and development programs for managing vertebrate pest species need to integrate interests relating to both primary production, environmental conservation and consider animal welfare and other ethical issues surrounding the control of animals.

The Australian Government has long recognised predation by feral cats as a threat to Australian fauna with a listing under earlier legislation and inclusion on the list of Key Threatening Processes of the *Environment Protection and Biodiversity Conservation Act 1999* at commencement. A statutory Threat Abatement Plan was made with its most recent iteration in 2015. The Threat Abatement Plan establishes a national framework 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 predation by feral cats. Successful implementation of the Threat Abatement Plan depends on a high level of cooperation between landholders, non-government organisation, community groups, individual volunteers, local governments, state and territory conservation and pest management and research agencies and Australian Government agencies. Success depends on all participants assessing cat impacts and allocating adequate resources to achieve effective on-ground control of feral cats at critical sites, improve the effectiveness of management programs, and measure and assess outcomes for threatened species and biodiversity more broadly.

Department action on feral cats was boosted in 2015, with ‘tackling feral cats and their impacts’ being a priority action area in the Threatened Species Strategy (2015 to 2020) and research into feral cats being a key component of the Threatened Species Recovery Hub under the National Environmental Science program running from 2015 to 2021. A result of this increased focus by the Department has been a parallel increase in action by state and territory governments, non-government organisations and the community more generally.

The Threatened Species Recovery Hub is conducting research to improve our understanding of the impacts of feral cats on native Australian wildlife and improve our capacity to manage those impacts. The Hub is conducting a research project to synthesise information on cat impacts, cat management, and how to measure the management effectiveness of cat control and effectively disseminate this information. This builds on a range of previous work undertaken by the Hub with over \$3.24 million of National Environmental Science Program (NESP) funding directed to feral cat research which has yielded a range of factsheets, journal articles, books and book chapters, videos, and media articles that have guided Departmental and other end user decisions.

Feral cats mainly impact primary production through the spread of pathogens to livestock such as sheep. These can cause diseases such as toxoplasmosis and sarcocystosis that affect production but do not put at risk the international disease-free reputation of Australian produce.

The Department is supportive of measures to control the impacts of domestic cats on the environment and acknowledges these cats are an important part of our society. Responsibility for managing domestic cats ultimately rests with their owners, but is supported by appropriate legislation, education and awareness by state, territory and local governments. Organisations such as the RSPCA are also critical in supporting confinement for domestic cats for the wellbeing of the cats and protection of wildlife.

The submission provides an overview of the breadth of the work of the Department related to feral and domestic cats, and how it links to the responsibilities of the Australian Government. Other agencies within the Australian Government also have responsibilities that are not covered within this submission.

Terms of Reference

- a) [the prevalence of feral and domestic cats in Australia](#);

In brief

National cat population:

- Domestic cats - 3.8 million
- Feral and stray cats in urban areas - 0.7 million
- Feral cats in the bush - 2.1 million (up to 5.6 million after good rain)

Cat occurrence in Australia:

- 99.9 per cent of total land area
- 92 per cent of total island area
- Average density of feral cats in the bush, on the mainland, is 1 cat per 3 km² but reach appreciably higher densities in arid areas and on small islands
- Densities (of feral cats and pet cats) are much higher in urban areas

The NESP Threatened Species Recovery Hub has completed a set of national-scale studies that tally the number of cats in Australia and the number of animals they kill.

The research team collated cat density information from about 100 local studies across Australia, modelled this data (to identify factors influencing spatial variation in density) and then applied these models to estimate the total numbers of feral cats in Australia. It was determined that the average density of feral cats in largely natural Australian landscapes is about 0.3 cats per km², that their density is much higher on islands (especially smaller islands) than on the Australian mainland, and that density in arid and semi-arid Australia varies appreciably depending upon rainfall conditions. Based on our models of variation in density, it's estimated that there are 2.1 million feral cats in natural environments in Australia, increasing to almost 6 million nationally in times of plenty.

Feral cats occur pervasively across mainland Australia except where they have been removed from conservation exclosures (which collectively cover about 275 km²) and they also occur on nearly 100 islands (including all islands larger than 1000 km²). This equates to feral cat occupation and wildlife impact across more than 99.9 per cent of the Australian land mass.

In addition to tallying feral cats in natural environments, NESP researchers estimated that there are about 0.7 million stray and feral cats in highly modified environments. Domestic cats are much more readily and precisely counted, and public surveys report that there are about 3.8 million domestic cats in Australia. The total Australian population is about 6.6 million cats in most years.

Feral Cat Scan is a resource hosted by the Centre for Invasive Species Solutions and the Department and is supported by communities Australia-wide to improve knowledge about feral cats to help protect Australia's unique and threatened native wildlife. A website (www.feralscan.org.au/feralcatscan/default.aspx) and app can be used by the community to record sightings and impacts caused by feral cats. Information recorded helps to identify where feral cats are present and provides information to managers.

b) the impact of feral and domestic cats including on native wildlife and habitats;

In brief:

In Australia every day cats kill:

- Mammals - 3.1 million (mostly native species in the bush; mostly introduced species in towns)
- Birds - 1.1 million (almost all native species)
- Reptiles - 1.8 million (almost all native species)

Average number of mammals, birds and reptiles killed per cat:

- A feral cat in the bush - 748 animals/year
- A stray or feral cat in urban area - 449 animals/year
- A domestic cat - 76 animals/year

Numbers calculated by the National Environmental Science Program's Threatened Species Recovery Hub.

The NESP Threatened Species Recovery Hub has quantified the impacts of both feral and domestic cats. This work is summarised and the Hub's submission will provide greater detail than this submission. Their summary factsheets are listed in the Attachment.

Domestic cats are considered one of the most damaging invasive species worldwide, causing impacts through predation, disease transmission, hybridisation (with native wildcats, in Europe and Africa), and competition. Globally, cats are considered to have contributed to the extinction of at least two reptile, 40 bird and 21 mammal species – over one quarter (26%) of the total extinctions of these groups since the year 1600 (Woinarski *et al.* 2019). Currently, cats are contributing to the imperilment of at least 360 threatened reptile, bird and mammal species worldwide, about half of which are species restricted to islands.

In Australia, about 28 mammal species have become extinct since European settlement – a rate of mammal extinctions far greater than anywhere else in the world (Woinarski *et al.* 2014). Cats have been primary contributors to about two-thirds of these extinctions. Examples include marsupials like the pig-footed bandicoot, the lesser bilby, the Nullarbor dwarf bettong, the desert rat-kangaroo and the broad faced potoroo; and native rodents including at least four species of hopping-mice, two species of rabbit rat, and the lesser stick-nest rat. Cats have also been primary agents in the extinction of some Australian birds that are restricted to islands, such as the Macquarie Island parakeet and Macquarie Island buff-banded rail.

The NESP Program's Threatened Species Recovery Hub has completed a set of national-scale studies that tally the number of cats in Australia and the number of animals they kill. Quantifying the toll on wildlife can be calculated by multiplying the cat density in any area by the number of animals any cat in that area has in its stomach, with these tallies then summed across Australia and across 365 days to derive an annual toll.

It's estimated that an average feral cat in natural landscapes kills 129 birds per year, summing to a national tally of 272 million birds killed per year by all feral cats in natural landscapes, with 99 per cent of these being native Australian birds (Woinarski *et al.* 2017). It's estimated that feral cats in highly modified environments kill a further 44 million birds per year, and that pet cats kill about 70 million birds per year (Woinarski *et al.* 2017). Collectively, the Australian cat population kills more than one million birds per day. The number of birds killed by cats per km² is ten times higher on islands than on the mainland, with many island seabird colonies suffering very high predation rates (Woinarski *et al.* 2017).

Reptile and mammal tolls are even higher. It's estimated that feral cats in natural landscapes kill about 466 million reptiles per year (almost all native species), and the total Australian cat population kills about 649 million reptiles per year (Woinarski *et al.* 2018). It's estimated that 815 million mammals (mostly native species) are killed per year by feral cats in natural landscapes, and 1.14 billion mammals are killed by all Australian cats each year (Murphy *et al.* 2019). There is marked geographic variation in the proportion of native mammals (compared to introduced mammals) killed by cats, with the introduced rabbit and house mouse making up much of the mammal component of cat prey in large parts of southern Australia, but native mammals forming the bulk of cat diet elsewhere.

Cats are now known to prey on 357 bird species in Australia (about half of Australia's native non-vagrant species), including most of Australia's threatened bird species. Cats are more likely to prey on bird species that are island endemics, are of intermediate body mass (60–300 g), and that nest and forage on the ground, such as button-quails and rock-pigeons. The equivalent tally for Australian reptiles is 258 species (about one-quarter of all Australian reptile species), including 11 threatened species. For mammals, cats are known to prey on 151 species in Australia (just over 50 per cent of the Australian terrestrial species' complement), including 50 threatened mammal species (Woolley *et al.* 2019). The non-flying mammals most likely to be preyed upon by cats are of intermediate body weight (100–800 g), and occur in arid areas but not rocky habitats, such as mulgaras and kowaris.

The total population size of Australian mammals and reptiles is unknown, but for birds, it's estimated that cats are killing about 3-4 per cent of the total population each year. However, this pressure falls unevenly across species, and those with small population sizes, with cat-preferred traits such as ground-dwelling, and with low reproductive output (as is typical of many Australian species) are unlikely to be able to sustain the unrelenting loss of individuals taken by cats. Furthermore, this persistent predation pressure of cats compounds the impacts of the many other factors that threaten much of Australia's biodiversity.

Invertebrate (including spiders, scorpions, centipedes, millipedes and insects) consumption is poorly known across all of Australia, except that they are not a preferred food source. They only become important in times of prey scarcity (Doherty *et al.* 2015).

The prey taken by feral cats varies with the abundance of different species. In southern Australia, rabbits are often a main prey item for feral cats, but in times of drought or when rabbit numbers are controlled the proportion of native prey in the feral cat diet increased (Dickman and Newsome, 2014; Williams *et al.* 1995; Read and Bowen, 2001; Holden and Mutze, 2002).

The impact from individual cats is also known to be variable. Feral cats often specialise in different types of prey, either because this is what they have learnt to hunt effectively, or they have keyed in on an easy resource. For example, banded hare-wallabies (*Lagostrophus fasciatus fasciatus*) reintroduced within Shark Bay had clusters of kills attributed to individual feral cats targeting the banded hare-wallabies once a single animal had been taken (Harman *et al.* 2016). Near Mandurah, Western Australia a single, de-sexed, stray cat was observed in person and via wildlife cameras killing six breeding terns and causing the reproductive failure of 111 nests of the EPBC Act listed vulnerable Australian Fairy Tern (*Sternula nereis nereis*).

Diseases that cats spread can have major impacts on native wildlife, affect agriculture and people. Free-roaming cats (feral, stray or domestic) are an important source of zoonotic diseases including protozoan parasites (e.g. *Toxoplasma gondii*), cutaneous larval migrans (e.g. hookworms - *Ancylostoma tubaeforme*, *A. ceylanicum*, *A. braziliense*, and *Uncinaria stenocephala*; and roundworms (*Toxocara cati* larvae); tapeworms (*Spirometra erinacei*), *Giardia* and tularaemia. Cats could be carriers of exotic diseases (e.g. rabies), should these diseases enter the country.

Cats are the only definitive host (this is where reproduction occurs) of the *Toxoplasma gondii* protozoan but it infects wildlife, livestock and humans causing toxoplasmosis. There is evidence that free-roaming cats could be a source of *T. gondii* transmission to Australian marsupials, which are highly susceptible to this parasite. Australian marine mammals can also be infected with *T. gondii*, likely via contamination of coastal environments with freshwater runoff containing infectious oocysts. Acutely infected individuals can have a range of symptoms including blindness, disorientation and ataxia, as well as causing abortions and risk-taking behaviours. In Tasmania it has been found that 84 per cent of feral cats tested across the state tested positive for *Toxoplasma gondii* antibodies (Fancourt and Jackson, 2014). An abrupt decline in the number of Tasmanian bettongs (*Bettongia gaimardi*) at a site was attributed to both feral cat predation and probably toxoplasmosis as all cats and most eastern quolls at the site tested positive. Adams (2003) measured *Toxoplasma gondii* levels in Western Australia and found infections in 4.9 per cent of feral cats and 6.5 per cent of native animals. Parameswaran *et al.* (2009) found that marsupials in Perth metropolitan area had a 15.5 per cent prevalence of *Toxoplasma gondii*. It is probable that these animals have a higher exposure to cats through the presence of domestic, stray and feral cats than areas further from human habitation. While the study did not consider the transmission to domestic cats and people, a prevalence this high in the area would suggest transmission is possible. Feral cats spread *Toxoplasma gondii* to sheep via their faeces. Prevalence of toxoplasmosis has been measured

in sheep on Kangaroo Island at 57 per cent (Taggart, 2019), although this is much higher than elsewhere in Australia.

Sarcocystosis is a cyst forming organism that can cause the disease sarcosporidiosis in mammals, with cats being a host. Cysts form within the muscle tissues and where infection rates are high, such as on Kangaroo Island, this can impact on primary production through carcass rejection or significant trimming of affected meat.

Predation by feral cats overlaps with the European red fox, also recognised under the EPBC Act as a key threatening process. Where these two invasive predators co-exist, they have a cumulative toll on small to medium size animals and birds. There is some evidence of foxes excluding feral cats from food resources, but this does not offset the combined predation. We also know from areas where there are no foxes that feral cats still have a huge toll on native wildlife. For example, Stokeld et al. (2018) found a significant increase in reptile abundance in a northern Australian site where foxes do not live, and feral cats had been excluded. Similar evidence comes from islands where foxes either did not establish or have been eradicated such as Phillip Island in Victoria and Dirk Hartog Island in Western Australia where feral cats prey on threatened species such as hooded plovers (Phillip Is.), western barred bandicoot (caused a local extinction on Dirk Hartog Is.) and loggerhead turtles (Dirk Hartog Is.).

c) the effectiveness of current legislative and regulatory approaches;

In brief:

EPBC Act approaches:

- Listing Predation by feral cats as a key threatening process
- Making a statutory Threat Abatement Plan
- Identifying the threat during environmental assessments and consideration as part of an offset strategy
- Undertaking risk assessments for potential imports of felid hybrid species

Other Australian Government legislative requirements administered by other agencies are not included.

Strategic non-legislative approaches:

- Management of feral cats by Parks Australia
- Threatened Species Strategy targets for feral cats
- Investment in on-ground feral cat control via the National Landcare Program
- Investment in research via the National Environmental Science Program and Agricultural Competitiveness White Paper Initiative
- Development of best practice standard operating procedures and humaneness assessments

The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) has several legislative parts that are relevant to the problem of predation by feral cats. These are that the threat is:

1. listed as a Key Threatening Process;
2. identified for action in Conservation Advices and Recovery Plans for listed Threatened Species and Ecological Communities;

3. identified during environmental assessments of actions that may impact on Matters of National Environmental Significance or as part of an offset strategy; and
4. taken into consideration when assessing applications to amend the List of Specimens Suitable for live Import (see Term of Reference f).

The EPBC Act identifies Key Threatening Processes impacting on listed threatened species and ecological communities, or that may cause species or ecological communities to become listed. Key Threatening Processes encompass a range of threats including impacts from invasive species, loss of habitat from climate change and land clearance and entanglement in marine debris. Sections 183-184 of the EPBC Act Listing of key threatening processes provides for the Minister to establish a list of threatening processes that are key threatening processes. Predation by feral cats was included in the first established list having been brought over from the former *Endangered Species Protection Act 1992*.

The EPBC Act provides for the Minister to decide to have a threat abatement plan for a key threatening process if the plan is a feasible, effective and efficient way to abate the process. There has been a Threat Abatement Plan for Predation by Feral Cats in force under the EPBC Act since 2000, with the most recent version in 2015.

The Department develops threat abatement plans with assistance from other governments, natural resource managers and scientific experts, and facilitates their implementation.

Threat Abatement Plans are viewed by stakeholders as useful in providing a framework for shared implementation of threat abatement actions across jurisdictions, NGOs and local groups, and provide clear direction for research at a national level. They allow groups to leverage funding and resources because the Key Threatening Processes are nationally recognised. To progress the main actions within the Threat Abatement Plan, the Department relies on partnerships and co-investments with other government agencies, industry and other stakeholders. An important part of implementation of the Threat Abatement Plan is ensuring that knowledge of improved abatement methods is disseminated to potential users.

To take a national Threat Abatement Plan through to action requires operational planning. Regional natural resource management plans and site-based plans generally provide the best scale and context for developing operational plans to manage invasive species. They allow primary production 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.

Since 2015 the Feral Cat Taskforce has provided a forum for the Department and others to track and report on implementation of the Threat Abatement Plan. The Feral Cat Taskforce was established in 2015 to assist with meeting the feral cat targets under the Threatened Species Strategy, which are complementary to the Threat Abatement Plan. The Taskforce meets approximately six monthly and at each meeting considers what work has been undertaken against the actions in the Threat Abatement Plan. An example of the reporting is at Attachment A. This demonstrates there are a variety of ways to tackle the actions and the timeframes on achieving threat abatement against each is variable.

The listing of threatened species and ecological communities under the EPBC Act requires an associated Conservation Advice to be drafted to assist its recovery. Conservation Advice provides guidance on immediate recovery and threat abatement activities that can be undertaken to ensure the conservation of the species or ecological community. For some species and ecological communities, Recovery Plans may also be developed to assist in recovery, if the Minister decides a

Recovery Plan is required. Recovery Plans set out the research and management actions necessary to stop the decline of, and support the recovery of, listed threatened species or threatened ecological communities. The aim of a recovery plan is to maximise the long-term survival in the wild of a threatened species or ecological community. Recovery Plans state what must be done to protect and restore important populations of threatened species and habitat, as well as how to manage and reduce threatening processes.

An example of a Conservation Advice for the endangered star finch (*Neochmia ruficauda ruficauda*) (eastern) identifies predation by feral cats as a threat and recommends the development and implementation of a management plan for the control and eradication of feral cats and European red foxes from the local region. Attachment B provides an example of how actions related to predation by feral cats is handled in a Recovery Plan.

Conservation Advices and Recovery Plans are complementary to Threat Abatement Plans. The process of identifying threats that cross multiple species or communities provides an efficient, coordinated way to tackle threatening processes that may otherwise be extremely challenging if management focus is on a single species or community. Conversely, Conservation Advices and Recovery Plans provide the detail that is not possible for a Threat Abatement Plan.

The EPBC Act provides a mechanism with which the Australian Government protects and manages matters of national environmental significance (MNES) which includes, among other matters, nationally and internationally important fauna and threatened species. Environmental assessments under the EPBC Act are conducted when an action (for example, changes in land use or new developments) has, will have, or is likely to have, a significant impact on one or more matters of national environmental significance. Such an action would require referral to the Department for assessment and approval. In undertaking an assessment, the Minister must consider all information related to a protected matter and relevant statutory documents for protected matters that are being impacted, such as approved conservation advices, recovery plans and threat abatement plans.

During the assessment phase, environmental offsets maybe proposed. Offsets compensate for the residual impacts of an action on the environment, after avoidance and mitigation measures are taken. Environmental offsets can include feral cat management/abatement strategies that contribute to broader measures in place for management and control of this recognised threat to threatened species.

Tools for managing feral cats are regulated to ensure they are safe for people to use, have an acceptable level of humaneness and are effective. Most of this regulation is the responsibility of state and territory governments as the primary regulators of land management. However, toxins are also regulated by the Australian Pesticides and Veterinary Medicines Authority under the *Agricultural and Veterinary Chemicals Act 1994* and *Agricultural and Veterinary Chemicals Code Act 1994*. Two toxins, sodium fluoroacetate (1080) and para-aminopropiophenone (PAPP) are registered for use in Australia. Two registered products are available, Eradicat® for use in parts of Western Australia, and Curiosity® bait for feral cats, for use more broadly but with conditions that limit use. To obtain registration a comprehensive evaluation of the efficacy and risks of the toxin and product to people, the environment and to specific native animals that could encounter the product is undertaken.

The Australian Pesticides and Veterinary Medicines Authority also issues research and minor use permits for products such as the Felixer Grooming Trap and other 1080-based baits such as Hisstory. These are typically issued where a product is in a research and development phase prior to applying for registration or are intended to be applied in small area for a restricted time with minimal risks.

Strategic non-legislative approaches

This section outlines many of the strategic approaches utilised by the Department to abate the threat of predation by feral cats. Where possible, the submission outlines measured effectiveness of the different approaches. Outcomes can be measured in different ways and it is often the combination of these different strategies or application of the tools developed that achieve the benefit for threatened species recovery. For example, the use of fenced exclosures – safe havens – where threatened species can be managed and bred provide an insurance while managers work out the best methods for feral cat suppression in the open landscape. Offshore islands provide a more easily measured outcome, but for elsewhere it can be more challenging to provide a clear measurement of the contribution that one strategy provides. Term of Reference (e) provides some more detail about effectiveness.

Management of feral cats on Commonwealth land

The Department also uses non-statutory approaches to abate the threat of predation by feral cats.

Feral cats are managed by Parks Australia on Commonwealth managed national parks. The Director of National Parks, assisted by Parks Australia, is responsible for managing Commonwealth terrestrial and marine protected area estates, and therefore has an important role in the conservation of Australia's native flora and fauna. The Director of National Parks is responsible for undertaking activities on Commonwealth reserves to achieve outcomes from the Threat Abatement Plan for Predation by Feral Cats and the Australian Government Threatened Species Strategy.

Feral cats are a pest species that affect the majority of Parks Australia's terrestrial reserves. However, the parks encompass an extremely diverse range of ecosystems and landscapes, and Parks Australia has found that the approach to the problem needs to be tailored for each individual place. Parks Australia uses and is trialling a range of cat management tools to find what equipment and techniques work best in each situation. To assist and support Parks Australia natural resource managers in cat control techniques and options, Parks Australia has formed a partnership with Biosecurity Queensland's Pest Animal Research Centre and Parks Australia work with other cat control experts in individual parks.

The Threatened Species Strategy targets for feral cats include best practice feral cat control implemented in 2 million hectares of Commonwealth land. The Department has supported, via the Office of the Threatened Species Commissioner, a number of Parks Australia's feral cat management programs, including mobilising more than \$800,000 of Australian Government funding to contribute to the following projects:

- Christmas Island feral cat eradication program
- Norfolk Island feral cat management program
- Partnership with Biosecurity Queensland's Pest Animal Research Centre
- Adaptive cat management in Kakadu National Park

Work to manage cats in the parks includes:

- An ambitious program on **Christmas Island** that aims to eradicate all feral and stray cats. The program employs roadside baiting, cage trapping, soft-jaw leg-hold trapping and shooting. Since 2010, over 1,200 cats have been removed from the island. The program has a strong focus on evaluation and improvement – a review was conducted in 2018, leading to a series of trials of different techniques by Parks Australia, and the development of a new eradication plan to be

implemented over the next four years. The program is underpinned by community engagement. Eradication is only possible because of support from the Christmas Island community. Christmas Island requires pet owners to register and de-sex all domestic cats on the island, and no new cats may be brought in.

- A feral cat management program that commenced on **Norfolk Island** in 2018 to reduce impacts on the island's threatened bird species, particularly the Norfolk Island green parrot. The program has seen an increase in trapping effort across the island, accompanied by monitoring to record changes in patterns of cat occurrence and evaluate effectiveness of management, as well as community engagement to strengthen management of domestic cats.
- A new project to be implemented in **Kakadu National Park** in 2020 in partnership with the Flora and Fauna Division of the NT Department of Environment and Natural Resources, to improve understanding of cat abundance and efficacy of control techniques in lowland savanna in the park. Extensive grids of remote cameras will be deployed in two areas to obtain robust estimates of cat abundance before and after targeted control activities; this will provide important information on the effectiveness of actions to reduce feral cat densities and inform future management planning. This will complement existing management of cats through cage trapping around Jabiru. In addition, to reduce the risk of domestic cats in the park acting as a source of recruits to the feral population, the Director of National Parks provides some funding to Animal Management in Rural and Remote Indigenous Communities (AMRRIC), which sterilises cats and dogs in outstations across NT, including in Kakadu National Park.
- Maintenance of the feral cat free status in **Pulu Keeling National Park**. Pulu Keeling is one of the few tropical islands in the world to be free of cats and rats, which is a significant factor in the maintenance of the island's biodiversity. Keeping pest species off the island is therefore one of the highest management priorities. The island is managed to prevent boat landings and visitor access except when accompanied by park staff, and monitored regularly to check that cats and rats remain absent.
- Maintenance of a 170 hectare predator-proof enclosure at **Uluru-Kata Tjuta National Park** to protect the introduced population of mala from cats and other feral animals. This enclosure is essential for the survival of the mala as they are susceptible to predation by cats and foxes and no longer occur in the wild on mainland Australia.

Threatened Species Strategy

The Threatened Species Strategy (2015) sets out a road map and highlights an approach of science, action and partnership to be used to achieve a long-term goal of reversing species declines and supporting species recovery. The Strategy includes ambitious targets related to tackling the impacts of feral cats such as the eradication of feral cats eradicated from five islands; establishing 10 feral cat free mainland exclosures; 12 million hectares of feral cat management; and two million cats culled by 2020.

The Threatened Species Strategy Year Three Report (Australian Government 2019), covering the period 2015-2018 and published in June 2019, detailed progress towards the Strategy's ambitious targets. The report identified that:

- Feral cat control is estimated to be occurring across 18 million hectares of the Australian landscape, which is reducing the impact on our birds and mammals such as the Western Ground Parrot, Central Rock-rat and the Woylie.
- Action to eradicate feral cats on five islands is well underway with management actions occurring on each of the identified islands (Christmas Island, Bruny Island, Kangaroo Island, French Island and Dirk Hartog Island). In Western Australia, Dirk Hartog Island has been declared

completely feral cat-free, paving the way for the reintroduction of ten mammal and one bird species that had become locally extinct from the island.

- All 10 mainland feral cat-free exclosures have been identified with actions underway. A number of exclosures have now been constructed or are in the final stages of construction. These new feral cat free exclosures will provide safe havens for some of our iconic species such as the Eastern Quoll and the Bilby so they can recover and thrive.
- Feral cat management has been undertaken across more than 600,000 hectares of Commonwealth land including Department of Defence properties and Commonwealth National Parks.
- The estimated number of feral cats culled between July 2015 and June 2018 is 844,000.

In years four and five work has continued to support these targets, primarily being directed through the National Landcare Program's Regional Land Partnerships initiative.

National Landcare Program

From 2014 to 2018, the Australian Government invested \$1 billion through the National Landcare Program Phase 1 to help support local environmental and sustainable agriculture projects. The National Landcare Program is providing further support to projects worth more than \$1 billion over six years from 2018 to help support local environmental and sustainable agriculture projects. It remains a key part of the Australian Government's commitment to protect and conserve Australia's water, soil, plants, animals and ecosystems, as well as support the productive and sustainable use of these valuable resources.

A major component of the National Landcare Program Phase 2 is the Regional Land Partnerships program. Regional Land Partnerships investment under the second phase of the Program commenced from July 2018, providing \$450 million over five years Australia-wide to deliver national priorities at a regional and local level.

The program is delivering against six outcomes, two of which are relevant to abating the threat from predation by feral cats.

- Outcome 2: The trajectory of species targeted under the Threatened Species Strategy, and other EPBC Act priority species, is improved.
- Outcome 4: The condition of EPBC Act listed Threatened Ecological Communities is improved.

Attachment C provides a table of National Landcare Program grants provided through the 25th Anniversary Landcare Grants, Local Programmes, Regional Funding, Regional Land Partnerships, Direct source procurement, and Wildlife and Habitat Bushfire Recovery Investment. Examples of the type of feral cat management that the Department has been able to support with these funds are:

- Engaging skilled contractors to complement community activity in baiting, trapping and shooting of feral cats;
- A community education program including pamphlets, displays and field days to raise awareness of biodiversity issues and the harm caused by feral cats;
- Remove the threat of cat predation from West Island, Northern Territory, and provide the opportunity to re-establish a population of phascogale. West Island is also a major breeding site for flat back turtles so the project will remove the potential for feral cats to prey on turtle hatchlings; and
- Feral cats will be targeted around warru (black-footed rock-wallaby) colonies using baiting, shooting, trapping and Felixer grooming traps.

Environment Restoration Fund

The Australian Government is investing \$100 million, over four years from 2019-20 to 2022-23, to help to protect our environment for future generations through the Environment Restoration Fund. The Environment Restoration Fund builds on the Government's \$1 billion investment, over six years from 2017-18 to 2022-23, in the National Landcare Program, to protect Australia's water, soil, plants and animals and support their productive and sustainable use

Projects funded under the Environment Restoration Fund will focus on the following priorities:

- Protecting threatened and migratory species and their habitat.
- Protecting Australia's coasts, oceans and waterways by addressing erosion, improving water quality and protecting coastal threatened and migratory species.
- The clean-up, recovery and recycling of waste.

Significant investment has been mobilised under the Environment Restoration Fund which are tackling the threat of feral cats. Some of the project activities include:

- Undertaking feral cat eradication activities on the Northern end of Bruny Island to support the Eastern Quoll
- Supporting the recovery of the bushfire impacted Kangaroo Island Dunnart through targeted feral cat control.
- Support for cost reduction and improved product availability of feral cat control tools Curiosity® bait for feral cats and Felixer Grooming Trap.

The Australian Government has also committed up to \$10 million under the Environment Restoration Fund to establish threatened species safe havens (fenced exclosures built to prevent predators, and sometimes other species such as rabbits, from entering). The first project under the commitment is currently being delivered. The project will deliver the completed construction of the Wandiyali Environa feral cat free fenced area and support species reintroductions.

Case study - Priority actions for eastern quolls on north Bruny Island, Tasmania

A \$1.5 million Australian Government Environment Restoration Fund project with the Tasmanian Southern Regional Natural Resource Management Association.

Tasmania's Bruny Island is a critical stronghold for the eastern quoll (*Dasyurus viverrinus*), a species extinct on mainland Australia since the 1960s, and one of 20 priority mammal species under the Threatened Species Strategy. Eastern quolls in Tasmania have been declining since 2001 due to threats including climate change, a decline in habitat quality, direct habitat loss and cats predating juvenile quolls. At present, north Bruny Island supports a stable, high density population that is key to the long-term viability of the species. The project will help protect the eastern quoll from feral cat predation, competition and exclusion impacts on north Bruny Island by tackling feral, stray and domestic cats through three different elements. The seabird colonies of little penguins and short-tailed and sooty shearwaters will also benefit from the removal of feral cat predation of chicks. This will be done by:

1. Removing feral cats from The Neck, Cape Queen Elizabeth and north Bruny.
2. Removing stray cats from the feeder areas of Simpson Bay and Alonnah area.
3. Informing the community about the Bruny Island By-law and enforcing compliance with it. The Bruny Island Cat By-Law requires:
 - a. Desexing, registering and microchipping of cats older than 6 months of age (unless a registered breeder);
 - b. Each household having no more than 2 cats;
 - c. Cats being contained within the property boundaries;
 - d. Every cat older than 6 months of age must be registered with the Kingborough Council;
 - e. No feeding of stray cats.

The project is an example of a collaboration between the Australian Government, Biosecurity Tasmania, the NRM organization, Kingborough Council, Ten Lives Cat Centre, Ferry Service, University of Tasmania, Bruny Farming and, most importantly, the Bruny Island community.

These different groups provide:

- Trialing of feral cat control tools such as the Felixer grooming trap.
- GPS tracking of feral cats and eastern quolls to understand interactions and movements.
- Trapping and euthanizing, and targeted shooting of feral cats around seabird colonies.
- A Cat Assessment and Holding Facility doubling as a 'shop front' for the project to facilitate community engagement.
- Reporting and trapping of stray cats.
- Assessment and processing of stray cats for re-homing where possible.
- One-on-one negotiations with owners of domestic cats to assist with by-law compliance.
- Subsidised de-sexing, micro-chipping and rehoming for domestic and stray cats.
- Assistance to cat owners to plan and build containment options for their cats and advice on how to help domestic cats make the transition to containment.

This project and strong collaborations are built on foundational work from 2016 to present. It is expected that by June 2023, feral cat predation, competition and exclusion impacts on north Bruny Island eastern quoll populations will be demonstrably reduced, with all known feral cats on north Bruny Island, including at the Neck and Cape Queen Elizabeth removed, all existing stray cats at Simpsons Bay and Alonnah removed, and all residents with cats are complying with the Bruny Island Cat By-law.

National Environmental Science Program

The Threatened Species Recovery (TSR) Hub under the National Environmental Science Program (NESP) is conducting research on the impact of feral cats on the Australian landscape. Over \$3.24 million of NESP funding has been used by the TSR Hub, to improve our understanding of the impacts of feral cats on native wildlife and improve our capacity to manage those impacts. The research is communicated via a range of factsheets, journal articles, books and book chapters, videos, and media articles that have guided departmental and other end user decisions.

Building on the research of the first six years, the second phase of the National Environmental Science Program invest \$149 million over six years in four new research hubs. The new hubs will develop applied environmental science to support decision-makers from across the Australian community, including Indigenous communities, achieve positive environmental, social and economic outcomes. In particular, the 'Resilient Landscapes' Hub will deliver applied research to support management of Australia's terrestrial and freshwater habitats, including a focus on bushfire recovery, feral animals and invasive species impacts, and accessible science to assist land managers to create and maintain resilient, sustainable and productive landscapes. This hub will also lead the cross-hub research mission 'Threatened and migratory species and ecological communities', which will build cross-disciplinary linkages to improve outcomes for threatened species, including research on the impacts of feral animals and invasive species.

Agricultural Competitiveness White Paper

The Australian Government has contributed to research, development and extension projects for the management of feral cats through the \$50 million Agricultural Competitiveness White Paper program administered by the then Department of Agriculture and Water Resources. The projects aim to improve the management of established pest animals and weeds, to help limit their impact on Australian agriculture and the environment. This is known as the Agricultural Competitiveness White Paper – Managing Established Pest Animals and Weeds measure.

Feral cat related research, development and extension projects that were funded through the Agricultural Competitiveness White Paper Initiative were required to have a national impact on agriculture, linked to agricultural competitiveness, or where feral cats were included as a subset of a project targeting other pest animal species with a national impact on agriculture. Projects and funding are detailed in Attachment D Table A.

Research, Development and Extension Projects for Pest Animals and Weeds

As part of a 2016 election commitment, the Australian Government committed \$20 million over five years (from 2017-18 to 2021-2022) to Invasive Animals Limited, to establish and manage the Centre for Invasive Species Solutions, to undertake invasive pest animal and weed research, development and extension activities. All states and territories excluding the Northern Territory, support the Centre for Invasive Species Solutions through a cost shared membership fee and in-kind research, development and extension support. Twenty-seven projects have been funded through the Centre for Invasive Species Solutions, including three projects relating to the management of feral cats (Attachment D Table B).

Established Pest Animals and Weeds Pipeline

From July 2019, \$30.3 million has been committed over the four years for the Established Pest Animals and Weeds Pipeline program, to build on the success of the Agricultural Competitiveness White Paper program and continue the fight against established pest animals and weeds. Planned work through the pipeline program may contribute towards the management of feral cats, such as:

- Funding to the Australian Bureau of Agriculture and Resource Economics Sciences (ABARES) for improving distribution mapping, population and impact assessments and prioritisation of pest animals and weeds.
- Funding to states and territories to help drive national coordination, extension and adoption of best practice 'farm ready' pest animal and weed management and control techniques.
- A competitive grants round for the delivery of targeted, innovative research into new and improved control technologies, along with projects to assist with the adoption of new technologies.

The Department, in cooperation with state and territory governments has developed a series of Standard Operating Procedures to provide best-practice guidance for the control of feral cats. These Standard Operating Procedures do not replace or override the legislation that applies in the relevant state or territory. There are Standard Operating Procedures for ground shooting of feral cats; trapping of feral cats using cage traps; trapping of feral cats using padded-jaw traps; baiting of feral cats with para-aminopropiophenone (PAPP); trapping using soft net traps; and methods of euthanasia. The Standard Operating Procedures are available on the Pest Smart website (<https://pestsmart.org.au/pest-animal-species/feral-cat/> and www.environment.gov.au/biodiversity/invasive-species/feral-animals-australia/feral-cats/curiosity-bait for the baiting Standard Operating Procedure).

The relative humaneness of different control techniques has been independently assessed using A model for assessing the relative humaneness of pest animal control methods (Sharp and Saunders, 2008). The humaneness of a pest animal control method refers to the overall welfare impact that the method has on an individual animal. A relatively more humane method will have less impact than a relatively less humane method. Ground shooting – head; ground shooting – chest; padded foot-hold trap; cage trap – shooting; cage trap – lethal injection; cage trap, transport – shooting; cage trap, transport – lethal injection; and PAPP baiting.

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

Cooperation with state and territory governments through:

- Feral Cat Taskforce established under the Threatened Species Strategy
- Commitment to the National Declaration driving legislative changes
- Pest animal management broadly through inter-governmental National Biosecurity Committee system

There is strong cooperation between the Department, state and territory governments, researchers, non-government organisations including the Centre for Invasive Species Solutions and Invasive Species Council, and others on solving the problems associated with predation by feral cats.

The Feral Cat Taskforce, chaired by the Threatened Species Commissioner, brings together feral cat researchers, non-government organisations, practitioners and representatives from every state and

territory to share knowledge, coordinate action and build momentum within the community for improved best practice feral cat control.

Established under the Threatened Species Strategy, the Feral Cat Taskforce drives the delivery of the 'tackling feral cats and their impacts' targets by:

- Linking initiatives, innovations and progress on managing feral cat threats;
- Building relevant partnerships and national cooperation on feral cat management;
- Informing government policy, planning and investment on strategic feral cat management; and
- Providing clear and accessible data, monitoring and public reports on feral cat management activity.

The Taskforce provides information and support to the Threatened Species Commissioner and the Department on implementing the feral cat actions and targets in the *Threatened Species Strategy*, specifically:

- a. advice on implementing the 'Tackling feral cats and their impacts' targets in the *Threatened Species Strategy* – including for islands, feral free areas, landscape scale management, and feral cat culling;
- b. advice on feral cat management actions which are most likely to be successful at protecting priority species in the *Threatened Species Strategy*;
- c. monitoring and reporting on feral cat management activities in their jurisdiction or organisation;
- d. encouraging partnerships between governments, non government organisations, and the community; and
- e. championing innovative feral cat management solutions.

As mentioned in Term of Reference c, the Feral Cat Taskforce helps coordinate and report on the implementation of the Threat Abatement Plan for Predation by Feral Cats. The Taskforce has met nine times since establishment in 2015.

The 2015 national declaration by environment ministers of feral cats as pests (see box) has driven legislative change in most states and territories. This has driven significant change within state and territory government legislation to enable effective use of a full suite of tools to control feral cats. Table 1 summarises the feral cat tools available in each state and territory. Welfare considerations and the need to restrict access to toxins sits behind some of the permit or exemption requirements. More detail is available at Attachment E.

National Declaration: Feral Cats as Pests

Melbourne, Victoria. 16 July 2015

Feral cats are a nationally significant pest that threaten our unique native fauna. While recognising the important role of domestic cats as companion animals, domestic and stray cats may also threaten native fauna.

Ministers agreed that where effective and humane techniques to control feral cats are available, that do not pose an unacceptable threat to the survivability and ecological function of non-target protected species in the treatment area, they should be pursued in coordination with other pest control activities to benefit threatened species.

Ministers committed to reviewing their jurisdictional arrangements including consultation with key stakeholders and interested community members and, based on this review, remove any unnecessary legal impediments to land managers undertaking feral cat control and management within a 12 month timeframe, where possible.

Ministers also agreed that the management of feral cats will be considered a priority in threatened species recovery programs.

Ministers supported community efforts to undertake and promote responsible pet ownership, and agreed to pursue the development of a national best practice approach to the keeping of domestic cats.

Table 1: Snapshot of tools available in each state/territory. See Attachment C for more detail.

*In Queensland use of some baits is permitted under APVMA minor use permits (1080 fresh meat baits,

	ACT	VIC	NSW	WA	TAS	QLD	SA	NT
Shooting	Under regulation	Only by authorised persons	Under regulation	Under regulation	Under regulation	Under regulation	Under permit	Under regulation
Baiting	Only by authorised persons	Curiosity (PAPP) under permit 1080 prohibited	Curiosity Pesticide Control order under consideration	Only by authorised persons	Under permit	Under permit*	Only by authorised persons	Under permit
Cage Traps	Under permit	Under regulation	Under regulation	Under permit	Under regulation	Under regulation	Under regulation	Under regulation
Leghold Traps	Under permit	Only under Minister exemption	Under regulation	Only under special exemption	Only under Minister exemption.	Under regulation	Under regulation	Under regulation
Dogs**	Prohibited for hunting	Under regulation	Under regulation	Under regulation	Under regulation	Under regulation	Under regulation	Under regulation
Felixer Traps***	Under research permit	Under research permit 1080 prohibited	Under research permit and Pesticide Control Order	Under research permit	Under research permit	Under research permit	Under research permit	Under research permit

Eradicat, Curiosity PAPP baits).

**Dogs are only allowed to locate, point and flush cats.

***Felixer Grooming Traps are under assessment for registration with the Australian Pesticides and Veterinary Medicines Authority. Limited use is permitted under research permits while the registration is being assessed.

Table colour guide:

Permitted for use under regulation



Under permit/only by authorised persons



Only under exemption/prohibited



Pest animal management more broadly is coordinated by intergovernmental committees under the National Biosecurity Committee. The Environment and Invasives Committee, comprising representatives from all Australian, state and territory governments, has responsibility for implementing the Australian Pest Animal Strategy. Managing the impacts from feral cats sits under this overarching strategy. While solely an Australian Government document, the threat abatement plan for predation by feral cats provides guidance for the management of feral cats within that broader context.

The national declaration also agreed that the management of feral cats will be considered a priority in threatened species recovery programs. The Australian Government has committed to this as

outlined in Term of Reference c. State and Territory Governments all have complementary threatened species recovery programs.

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

In brief:

Australian Government is supporting improving the number, efficacy, cost effectiveness and use of tools for controlling feral cats.

Progress on the management of feral cats has provided more tools and better estimates of the relative costs:

- Eradication of feral cats from islands is attractive over the long-term but with a high up-front cost
- Island eradications have been successful and further, more complex ones are planned or underway.
- Exclusion fences are effective but expensive. There are at least 24-30 functional fenced areas across Australia.
- Shooting and trapping feral cats is expensive and labour and time intensive but valuable at critical sites or times.
- Options for using baits are greater, although still not possible in Northern Australia.
- The Felixer grooming trap is a new tool.
- Traditional hunting skills are being employed to remove feral cats.
- Trained dogs are used to bail feral cats for their handlers.
- Habitat manipulation is an emerging field of research.

Genetic technology may be technically possible but will not provide a silver bullet for feral cats.

Control tools for feral cats are generally expensive and labour intensive, require continuing management effort and can be effective only in limited areas. Improvements are being made with progress in the last five years including the registration of the broadscale bait Curiosity, the development of the Felixer grooming trap to a registration application and limited use under a research permit, many new fenced exclosures to protect threatened species from predation, one island confirmed to be eradicated with several others in planning, progress or near completion, and better understanding about how feral cats use the landscape to be able to target control more effectively and protect native animals.

The Department has supported this work through the funding and programs already mentioned: National Environmental Science Program, Centre for Invasive Species Solutions, Established Pests and Weeds Pipeline, Threatened Species Strategy, National Landcare Program, Environment Restoration Fund and Parks Australia. The Department of Defence and CSIRO also contribute through their on-ground management of estate and research.

A feral cat management guide – part of a series called Glovebox Guides – is in development to provide information on best practice feral cat management for land managers including those managing for biodiversity conservation and agriculture, pest animal officers, and others involved in the management of feral cats. It will provide general information on developing a feral cat management plan, integrated approaches, identifying feral cat impacts, and management strategies and techniques.

Island eradication

Eradication of feral cats is an attractive option because, once achieved, it requires no further commitment of resources other than for monitoring and maintaining biosecurity. There are a number of conditions necessary to achieve eradication from a site:

1. The rate of removal exceeds the rate of increase at all population densities
2. There is no immigration
3. All reproductive animals are at risk (e.g. all females in the population can be eliminated).
4. All animals can be detected at low densities
5. Discounted cost-benefit analysis favours eradication
6. There is a suitable socio-political environment.

These conditions cannot be met for mainland Australia or Tasmania at present. The eradication of feral cats is well beyond the capacity of available techniques and resources. Because feral cats are so well established across the whole continent, it is not possible to meet the rate of removal requirement and feral cats can reproduce quickly when conditions are favourable so the requirement that the females in the population are all removed also cannot be met. However, the potential for feral cats to be eradicated from offshore islands around Australia is excellent and the eradication of cats from Dirk Hartog Island in Western Australia is a recent example.

Island eradications have an expensive up-front cost. For all islands there will be planning and implementation costs, and highly variable costs for the remoteness of the island and managing non-target native species risks. Any inhabited island or an island with cultural significance to Traditional Owners or interested people will require significant community engagement.

Examples of the cost of eradicating feral cats from islands:

- Eradication of feral cats from the uninhabited 620 km² Dirk Hartog Island cost \$10.6 million (\$2,105 per km² per year of eradication).
- Faure Island, Western Australia, an uninhabited 5800 hectares island in Shark Bay cost approximately \$40,000 (indexed 2020 value) or \$6.90 per hectare. This island was relatively straight-forward to eradicate.
- Macquarie Island in the sub-Antarctic was an expensive eradication because of the remoteness. Three years planning and five years to complete. Cost approximately \$3.3million (\$3.66 million today) or \$280 per hectare. This is approximately a mid-range value for successful island cat eradication campaigns (Campbell *et al.* 2011).
- Tasman Island, Tasmania cost about \$330,000 (indexed 2020 value). Robinson *et al.* (2015) gave costs of field- and office-staff time totalling 526 days; volunteers contributed 77 days. Salaries were \$134,000 over 2.4 years and operational costs \$194,000 (eradication plan, transport, eradication and monitoring equipment, field allowances, bait, dogs and staff training) in 2020-equivalent dollars.

There are 101 island havens containing populations of threatened species (Legge *et al* 2018).

There are few islands left around the Australian coastline with feral cats that do not have communities on the islands. The islands identified as priorities under the Threatened Species Strategy of Kangaroo Island, French Island, Bruny Island and Christmas Island are all inhabited and require community agreement for the eradication to be achievable.

The Department has also supported action to tackle the threat of feral cats on Norfolk Island, West Island, Tiwi Islands and Groote Eylandt. This includes activities such as promoting responsible pet ownership practices, establishing and implementing management plans, undertaking active feral cat control and supporting Indigenous rangers to manage and eradicate feral cats.

Successful eradications all used most or all the tools available.

Case study - West Island feral cat eradication

West Island in the Sir Edward Pellew Islands, Gulf of Carpentaria is the site of an attempted feral cat eradication by the li-Anthawirriyarra Sea Rangers.

A variety of tools have been used including baiting with the Eradicat bait in 2017 and use of soft-jawed leg-hold traps. The Sea Rangers brought an intimate knowledge of the land and sea country of the Pellew Islands to the project, as well as excellent tracking skills to direct where cat control activities would be most effective. Later in the program, li-Anthawirriyarra Sea Rangers were assisted by the traditional knowledge and skills of a champion desert cat hunter who visited the island to confirm the cats still present on the island in 2018 and the best places to deploy the Felixer Grooming Traps to maximise the chances of getting the remaining cats. A cat detection dog who normally works on Kangaroo Island was used and 30 remote cameras were deployed to help detect remaining cats and around the island.

In 2019, after 9 years of cat control on West Island, the li-Anthawirriyarra Sea Rangers were close to completing the eradication of cats from the island, and two of the four mammal species that occurred before the arrival of cats have shown a remarkable recovery.

There had been a resurgence in populations of two native species (Delicate Mouse and Grassland Melomys) and detection of two other native mammal species (Water Rat and Echidna). Ground-dwelling birds (including Chestnut Rails and Buff-banded Rails) and small goannas have also been observed more frequently since the cat population was reduced.

Additional mammal surveys are to be conducted to determine whether any remnant populations of phascogale exist on the island. If the species is found to be locally extinct there will be the opportunity to re-establish a population when the island regains its cat-free status. West Island is also a major breeding site for Flat back Turtles. Elsewhere cats have been shown to be significant predators of turtle hatchlings, so this project will remove the potential for this threat to occur.

Exclusion fencing

Exclusion fencing to protect against invasive species is an effective technique for native fauna vulnerable to feral cats. There are at least 24-30 functional fenced areas maintaining wild, self-sustaining populations of threatened species across Australia (Legge et al 2018 and updates). Their use is increasing but tends to be limited to the management of highly valued threatened species that can live in relatively small areas from which feral cats can be eradicated. Fencing also affects the movement of other wildlife and may prevent their dispersal and interbreeding with other populations. Exclusion fences are often erected for the purpose of excluding more than one type of vertebrate pest, typically wild dog, European red fox, feral cat and rabbit. Ongoing inspection and

maintenance costs must also be included as these are essential to excluding predators who will continually challenge fences.

Examples of costs associated with fenced areas area:

- Creating a fenced area in the Kimberley was estimated by Carwardine *et al.* (2011) at \$10-20,000 per enclosure to set up and \$40,000 per kilometre for fence and \$200,000 per enclosure for management. The Australian Wildlife Conservancy estimate a similar cost per kilometre of fence.
- A fence at Lorna Glen (Matuwa), Western Australia cost approximately \$27,000 per kilometre of fence (today's terms) (Helmstedt *et al.* 2014).
- At Mt Gibson Wildlife Sanctuary, Western Australia a 43 km predator-exclusion fence surrounding 7832 hectares cost \$341,000 (today's terms) to build and eradicate feral cats and rabbits with 4,800 person-hours of work (Ruykys and Carter, 2019).

Shooting

As a control technique, shooting is most appropriate if applied for an extended period or timed for critical periods. Ongoing shooting is appropriate in areas where there is a continual immigration of feral cats from surrounding areas and the species being protected from predation is vulnerable all of the time. Critical periods of shooting can be undertaken in locations where either there is a rapid increase in feral cat numbers, such as in response to a prey irruption, or at a time in the threatened species life cycle, such as during breeding, when the population of the threatened species is at a higher risk. An example is the Foundation for Australia's Most Endangered and South Australian Government project to reintroduce the western quoll to the Flinders Ranges, South Australia. Shooting is used to reduce the pressure on the western quolls from feral cats. Shooting is usually done at night from a vehicle with the aid of a spotlight but can also be conducted during the day. Shooting is expensive, labour intensive, time consuming and can only be done on a relatively small scale because of the resource requirements and high cost.

Trapping

Acceptable trapping of feral cats comprises cage traps and padded jaw leg-hold traps, although use of these methods vary in each state or territory. Cage trapping is considered to be an ineffective tool for large areas, but it may be useful in urban/residential areas where domestic cats are present, or where populations have already been reduced and individual cats need to be targeted. Padded-jaw traps are useful for sites where the feral cat can be destroyed by shooting while still held in the trap. They may also be more effective than cage traps for hard-to-catch feral cats that have had minimal exposure to humans. With both techniques of trapping, skilled operators are required to set the traps and lures to attract the feral cats. Trapping is expensive, labour intensive and time consuming; and is only recommended on a small scale or where eradication is the objective.

Baiting

Baiting can be the cheapest and most effective broadscale technique for controlling the numbers of animals. Baiting techniques for feral cats tend to be much less effective than techniques for baiting wild dogs and European red foxes because feral cats prefer live prey. There are two bait products registered for use in parts of Australia, the Eradicat[®] bait which is registered for use in Western Australia, and the Curiosity[®] bait for feral cats which is registered nationally. Baiting can pose risks to other species that may eat a bait. Baits are designed to contain the least amount of toxin required, which reduces the risk to species that have some tolerance (e.g. goanna species that are tolerant to a cat-sized dose of 1080 toxin). Placement of baits can also reduce risks, as can the timing of baiting (e.g. when reptiles are less active). Finally, designs such as with the Curiosity[®] bait make the bait improve target specificity.

The Curiosity® bait for feral cats has been a long-term \$5.9 million project by the Department, in association with the Victorian and Western Australian Governments, to develop a humane, broad-scale toxic bait to control feral cats in conservation areas. The Curiosity® bait for feral cats is a small meat-based sausage containing a small hard plastic pellet that encapsulates a humane toxin. The use of the pellet has been found to minimise exposure to many native species to the toxin. The Curiosity® bait for feral cats uses a new humane toxin called para-aminopropiophenone, or PAPP, which is considered best-practice world-wide. Felids and canids (cats, dogs and foxes) are particularly susceptible to this toxin meaning only low doses are required, less than what is necessary to harm many native species if they managed to consume the pellet. The Curiosity® baits cost approximately \$1.14 per hectare at present, although this cost does not include planning and logistical costs including aircraft for application of the baits.

Felixer grooming trap

Felixer grooming traps provide a novel technique for controlling feral cats by ejecting a dose of poison onto the fur of a target animal, which is subsequently ingested through grooming. A series of infrared laser-based range-finding sensors detect object moving in front of the Felixer. The sensors positions allow for feral cats to be distinguished from other non-target animals. Felixer grooming traps have the potential to provide feral cat, and European red fox, control at conservation sites where the feral cats can be directed to walk in front of the site, such as along a management track or stream bed.

Felixer grooming traps are under assessment for registration as a product with the Australian Pesticides and Veterinary Medicines Authority. Limited use is permitted under research permits while the registration is being assessed.

Traditional hunting

Indigenous people have hunted feral cats for as long as cats have been present in Australia. The ability for Indigenous Australians to track and follow a cat over long distances are skills being employed to remove cats from around threatened species habitat, such as bilby in the desert, and from fenced areas such as at Newhaven, Northern Territory. As well as the benefits to native animals from feral cat removal, the use of traditional hunters brings social, cultural and health benefits to these Indigenous communities. Feral cat is also considered as highly valued bush tucker and bush medicine food for many Indigenous groups.

The recognition of traditional hunting as a valuable feral cat control method has enabled significant research partnerships between western scientists and Traditional Owners to be formed. This two-way science approach has been supported by the Australian Government through programs and projects such as the Ninu (bilby) festival held in Kiwirrkurra Remote Community in 2016.

Dogs

Dogs are used in the control of feral cats by finding them, bailing them in a location (e.g. up a tree) and bringing their handler to the site. It is not legal anywhere in Australia to use dogs to catch or kill a cat.

Feral cat detection dogs are also being used extensively to improve efficacy of control techniques such as padded leg-hold traps. Detection dogs will identify locations in which feral cats have been utilising such as particular tufts of grass, logs etc and enable the cat control officer to lay targeted traps where cats are more likely to frequent. This technique has been used successfully in Australia's alpine region to undertake targeted feral cat control around populations of mountain pygmy possum and Koonoom (smoky mouse).

Biological control

The use of a biological control, such as a cat-specific virus, has appeal as a broadscale control tool for feral cats. For Australia, a study by Moodie (1995) found it unlikely that any felid-specific pathogen may be suitable as a sufficiently virulent and humane biological control agent from which domestic cats can be protected. Research has been underway for a number of years to identify other potential viruses and pathogens however no new suitable pathogens have been identified since 1995. None are available or acceptable for immediate application as a lethal biocontrol agent for cats.

Fertility control

Fertility control is an attractive form of pest animal management, being more humane than using lethal control measure to reduce pest population numbers. If an immunocontraceptive vaccine were developed for cats, its broadscale use would depend on the development of a suitable delivery mechanism for the vaccine and appropriate approvals to release the vaccine into the wild. The development of immunocontraceptive vaccines is both high cost and high risk, and no effective fertility control agents are currently available for broadscale use against any carnivore in the world (Saunders & McLeod 2007). In addition, consideration would also need to be given to protection for domestic cats, and the potential for the fertility control agent to get to another country that has native felids – posing a threat to them. Fertility control is not considered a feasible option for cat control at this time.

Habitat manipulation including the use of fire and other predators

Studies of feral cat predation behaviour have shown that particular habitats, vegetation structure, permanent water sources or other features in the landscape are targeted by feral cats or are shown to provide native animals with greater ability to avoid predation. This is an important emerging field of research that will allow for increased control of feral cat predation via the strategic use of fire and other indirect tools.

The brush-tailed rabbit-rat (*Conilurus penicillatus*) on Melville Island, Northern Territory appear to be able to use the parts of the island where the shrub density is high and feral cats are rarely detected. Davies *et al.* (2016) suggest that the impact of feral cats is mitigated by the vegetation structure.

Feral cat occupancy of complex areas of high topography such as gorges and escarpments is lower than less complex areas and these areas provide a refuge from predation for mammals across northern Australia (Hohnen *et al.* 2016).

Leahy *et al.* (2015), McDonald *et al.* (2016), Hradsky *et al.* (2017), McGregor *et al.* (2017) and other subsequent studies of native animals and feral cats with GPS tracking collars have found that feral cats will travel long distances to hunt for short periods over recently burnt areas. Large, hot fires that leave little cover for native animals provide attractive opportunities for feral cats to hunt. Appropriate fire management to reduce the incident of large fires may assist in controlling the impacts of feral cats.

There have been many studies into dingoes, wild dogs, dingo-dog hybrids and their relationships with feral cats in different Australian environments.

Humans aside, dingoes are considered to be the apex predator in most Australian environments (noting that dingoes (*Canus dingo*) are absent from Tasmania). They have the potential to influence or regulate the ecological system in which they occur. Dingoes, especially when they form stable pack structures that allow effective cooperative hunting, are able to prey on most animals up to the size of large macropods (Dickman *et al.* 2014). There is some dietary overlap between dingoes and

feral cats, but feral cats tend to consume smaller prey items and unlike dingoes they avoid carrion (e.g. Spencer *et al.* 2014).

The use of dingoes as a control tool for feral cats is far from simple. Dingoes influence the behaviour and possibly the densities of smaller predators, both native and introduced, within ecological systems. Dingoes and wild dogs may impact smaller predators in an ecological system by preying on them, or by competing with them for resources. The predation can be killing and eating events (intraguild predation) where the dingo/wild dog consumes the predator; or killing with no further purpose other than to remove a competitor (intraguild killing) (Glen 2014). The risk of predation can alter behaviour of these mesopredators too; they may avoid the areas used by dingoes/wild dogs, and/or they may avoid being active when dingoes/wild dogs are active.

There are also interactions of the European red fox with both the dingo/wild dogs and feral cat that need to be considered. The European red fox, being larger than the feral cat, is likely to have similar influences on feral cats as dingoes. Where European red foxes, wild dogs and/or dingoes and feral cats co-exist, the interactions and influences described above may be more complex or modified.

Genetic technology

Novel gene drive technology is an emerging technology that has potential for use in feral animal control programs by genetically altering entire populations.

Novel revolutionary genetic technologies have recently been developed that can force modified genetic traits into an animal population, defying the constraints of normal Mendelian inheritance (Esvelt *et al.*, 2014). A highly specific gene editing system (CRISPR/Cas9) is used. Examples of how this gene editing system could be employed is to alter the sex bias of new animals that will eventually lead to a population crash or sensitizing specific species to a particular toxin and thereby rendering them susceptible to it (Esvelt *et al.* 2014). Delivered and spread through sexual reproduction, the potential of this powerful new technology is unprecedented, making species specific and more humane pest control or even eradication theoretically feasible.

This approach to using genetic technology has been shown to work in insect model systems but not yet in any vertebrate animal. There is an international consortium of researchers including the CSIRO and University of Adelaide investigating the potential use of gene drive technology in invasive rodents through the Genetic Biocontrol of Invasive Rodents (GBIRD) project. These are the species most likely to be considered first for any release of a genetic technology.

The Centre for Invasive Species Solutions has a project *Business decision system to prioritise vertebrate pest species for the potential development of gene drive-based population control tools in Australia*, to better understand the demand, technical knowledge gaps, risk analysis and social licence, to establish a framework and prioritization system, to inform an appropriate investment strategy into gene drive and related research for pest control. The work is being done by the CSIRO with Western Australia Government Departments of Primary Industry and Regional Development and Biodiversity, Conservation and Attractions.

If the technology is found to be technically possible, it may be decades before it can be used for effective feral cat control due to the extensive research and regulation required to ensure the tool is safe. It is also important to emphasise that gene technology to control feral cats is not a “silver bullet” and would have limitations for potential application.

With the use of any form of genetic technology consideration will need to be given to the risk of movement (legal or illegal) of the gene-drive modified populations internationally to countries

where *Felis catus* is a native or desired species. In addition, there will need to be public acceptance in Australia of both the technology and the specific application to feral cats prior to any release.

Examples of efficacy

Except for island eradications, the tools above are typically used in combination to achieve the greatest efficacy in controlling feral cats. Efficacy can be estimated by considering the reduction in abundance or the population of feral cats at a site. However, feral cat control is always undertaken for a purpose, such as the recovery of a threatened species, so it is best to also measure the outcome for the purpose. Examples of this include:

- In the Northern Territory's West MacDonnell Ranges, targeted feral cat control has reduced extinction pressures on the critically endangered Central Rock-rat. Aerial deployment of Eradicator® baits across the last stronghold of the Rock-rat has reduced feral cat detections by 90 to 100 per cent.
- In Western Australia, integration of feral cat baiting into the Western Shield program has supported the recovery of Woylie populations at Dryandra Woodlands. The estimated number of Woylies increased from 342 individuals in February 2014 to more than 6,500 by April 2018.
- Targeted feral cat control occurring throughout the Flinders Ranges in South Australia is supporting the reintroduction of the Western Quoll. Surveys undertaken at the release sites in December 2017 recorded the highest number of Quolls captured (56 quolls) and a significant drop in feral cat numbers across all sites.

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

In brief:

Domestic cats can be imported to Australia under strict conditions designed to manage biosecurity risks under the Biosecurity Act.

Hybrid felids, crosses between domestic cats and other cat species, are not permitted to be imported—except for Bengal cats—under the EPBC Act's List of Species Suitable for Live Import.

The Department is reviewing the policy on hybrid animals.

Domestic cats can be imported to Australia under strict conditions designed to manage biosecurity risks. In 2018, 2484 cats were imported into Australia and in 2019 that number was 2692 (DAWE unpublished records).

The Department's import policy and conditions are in place to manage the biosecurity risks associated with the import of live domestic cats. As the biosecurity risks are the same for all breeds of domestic cat, there are no differences in the policy, and the conditions, applied under the *Biosecurity Act 2015*.

Whilst the import conditions don't vary between breeds, they do include a requirement that the cat must not be a hybrid between domestic and non-domestic species. This is in place as a long-standing action. The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) only permits a

live specimen (including hybrid animals) to be imported if it is included on the List of Species Suitable for Live Import (the Live Import List). There are currently no hybrid cat breeds on the Live Import List and Savannah cats are specifically excluded. As discussed below an exception has been made in the case of the Bengal cat.

To determine domestic cat breeds for import purposes, the Department relies on a declaration from the permit applicant and preparing and endorsing vets.

The Live Import List was established by the then Minister for the Environment and Heritage, the Hon David Kemp, under the EPBC Act in 2001, and replaced the Schedules established under the *Wildlife Protection (Regulation of Exports and Imports) Act 1982*. Generally, the List functions as an allowed list meaning unless a specimen is listed it cannot be imported. All specimens on Part 1 are unregulated animals which may be imported without permits under the EPBC Act while all specimens on Part 2 are regulated animals and require permits. All specimens which have not been assessed for import as live animals are also regulated animals and may not be imported into Australia.

Felis catus is listed on Part 1 of the Live Import List meaning they may be imported without a permit under the EPBC Act, but they are still subject to quarantine requirements under the Biosecurity Act. It is likely that a contemporary environmental risk assessment of the domestic cat would achieve a rating of extreme risk. This is borne out by the environmental impacts of feral cats on Australia's biodiversity; cats threaten one in five mammal species, 124 listed species and are implicated in 28 mammal extinctions (Threatened Species Strategy, Australian Government 2015; Woinarski *et al.* 2019) note that the animal communities of Australia are insecure, diminished or declining buffeted by an array of threats including feral cats and that, other than humans, it is likely that there is no other animal in Australia with as extensive a distribution as the cat.

The pet industry is not unlike the fashion industry, new patterns or colouration or designs of domestic animals, whether cats, dogs or aquarium fish, are always sought. Hybridisation provides a quick way to introduce new traits into domestic cats for people who seek novelty or different kinds of beauty or behaviour in their pets (Dickman *et al.* 2019). These are generally developed by crossing breeds of domestic cat with small wild cats to produce a hybrid animal for example the Bengal, the Savannah and the Chausie. Hybrid cats are popular pets, but they could potentially threaten native species if they escape or are released, establish free-roaming populations and damage native wildlife (Dickman *et al.* 2019).

Defining a domestic cat is becoming more difficult; taxonomically a domestic cat is *Felis catus*, however some groups, such as The International Cat Association (TICA), are recognising hybrid animals, for example the Bengal, a domestic cat - Asian Leopard Cat (*Prionailurus bengalensis*) cross, the Chausie, a domestic cat - Jungle Cat (*Felis chaus*) cross, and the Savannah, a domestic cat - Serval (*Leptailurus serval*) cross, as cat breeds. There are 17 identified hybrid cat types with new hybrid breeds in development (Messybeast, 2020: <http://messybeast.com/small-hybrids/hybrids.htm>) including the Serengeti and the Highlander which are in the process of being recognised as domestic breeds by TICA.

The Department does not recognise the registration of a breed standard for a hybrid by an organisation such as TICA as evidence that an animal is a domestic cat. In 2008 the then environment minister, the Hon Peter Garret, prohibited the import of the Savannah cat. The Department's hybrid policy, developed following then Minister Garrett's decision, states 'any hybrid, irrespective of generational distance from the original mating or wild ancestor is prohibited unless specifically listed' on the Live Import List (www.environment.gov.au/biodiversity/wildlife-trade/live/import-list/hybrid-animals-guidance).

An exception to the hybrid policy has been made in relation to Bengal cats which were present in Australia prior to the Savannah cat decision and are considered a legacy issue. Bengal cats can only

be imported if they can be shown to be at least an F5 animal, that is the animal's parents, grandparents, great-grandparents and great-great-grandparents were not an Asian Leopard cat. To import a Bengal cat into Australia the importer must provide the Department with a pedigree which lists it and its preceding four generations.

The Department has seen many Bengal cat pedigrees that indicate the animal is at least five generations removed from the original breeding event but in every case the pedigree shows all crosses are between Bengal cats. This preserves the Asian Leopard cat genetics and, by selective breeding, may result in an enrichment of the Asian Leopard cat genetics in the offspring. This high level of wild ancestor genetics is maintained by international breed standards for example the TICA breed standards for the Bengal, accepted for championship in 1991¹, (<https://tica.org/phocadownload/bg.pdf>) indicate that there are no permissible outcrosses so the offspring of a cross between one of these hybrid cats and any other cat are not considered to be pedigree animals.

The unique features that makes hybrid cats attractive pets to people also may mean they are potential feral animals in their own right or could breed with feral cats to produce a more effective feral animal. An average domestic cat weighs between 3.6 and 4.5 kg, a Bengal's weight is between 3.6 and 6.8 kg. The Bengal's coat is a mixture of marbling or rosettes that is likely to confer excellent camouflage for a hunting animal. They are described as a highly intelligent, excellent hunter, fiercely territorial and athletic cat (<https://pethelpful.com/cats/The-Joys-and-Hazards-of-Living-with-a-Bengal-Cat>). If these traits entered the stray or feral cat populations it is possible that this may result in a bigger more efficient feral animal that due to its size, coat and behaviour would have a positive selection pressure in the wild. There are claims that due to their expense Bengals are not likely to be dumped. Evidence shows the Bengal characteristics make them unsuited to many households and therefore they are dumped in significant numbers (www.bengalrescue.com.au/Bengal_Rescue_Australia/Home.html), (<https://www.wildcatsanctuary.org/education/species/hybrid-domestic/what-is-a-hybrid-domestic/>).

It is difficult to determine if the Bengal, a relatively new type of animal that resembles a large tabby cat, already has entered and enhanced characteristics of the feral cat population making them more suited to survive in the Australian environment. The Department is concerned that continuing to import Bengals, and commencing the import of other hybrid cats, poses a significant risk to the Australian environment.

Many small wild cats and hybrid cats resemble what the public identify as a domestic cat, this creates a perception they are merely different breeds of the one species. This perception is reinforced by their registration as cat breeds by organisations such as TICA.

The Department is reviewing the policy on hybrids and this exception for Bengal cats may be removed in the future. A move to close this loophole is unlikely to be popular with sectors of the community in particular breeders and owners of Bengal cats.

¹ Breeds of cats which have been accepted for the championship are recognized as being eligible to compete in TICA sanctioned shows and eligible for appropriate titles and/or computation of Annual Awards.

g. public awareness and education in relation to the feral and domestic cat problem

In brief:

The Minister's declaration on feral cats and Threatened Species Strategy feral cat targets have raised the profile of the feral cat problem.

Social media posts by the Threatened Species Commissioner can reach and engage over 100,000 people.

Educational tours of fenced sanctuaries provide education opportunities.

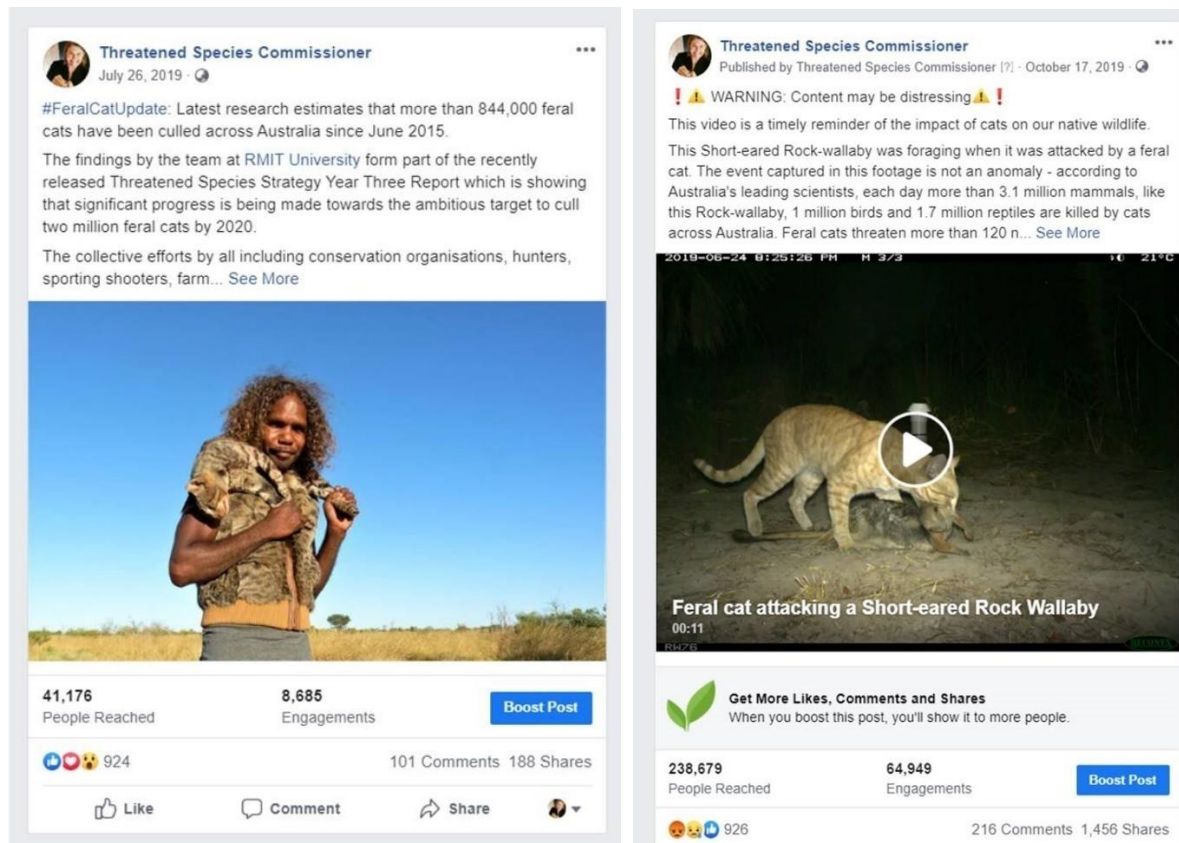
Parks Australia's feral cat control work is underpinned by community engagement.

The lead from Ministers in 2015 with the declaration that feral cats are a nationally significant pest that threaten our unique native fauna has helped raise the profile of the problem of feral cats. Explicit targets in the Threatened Species Strategy has provided a forum for the Department to undertake awareness raising. Through the lead of the Threatened Species Commissioner and targeted funding to feral cat projects by the Department other organisations have also increased their level of public awareness raising of the issue.

The Threatened Species Commissioner regularly posts on the impacts of cats on our native wildlife. These social media posts on feral and domestic cats regularly have very high levels of reach and engagement, with thousands of Australians engaging with, commenting on, and sharing the posts. Over the last year, the Threatened Species Commissioner has posted over fifteen times on the impact of feral and domestic cats and the average reach² of these posts is 76,703 people and the average engagement³ is 15,990 people. Many cat posts attained reach and engagement over 100,000 people. The top post for this period reached **238,679** people and engaged **64,949** people. Below are two example posts from 2019.

² Reach: the number of people who see a post in their newsfeed.

³ Engagement: the number of people who engage with a post, e.g. sharing, commenting or liking it.



Social research shows cat owners can be unaware of their domestic cats roaming behaviour and the prey taken by their cat. There is often little connection between the problem of predation by feral cats and that of stray or domestic cats.

Fenced sanctuaries, especially those close to major population centres such as Mulligans Flat in the Act and Karakamia near Perth provide for visitors with regular guided tours and events. These provide opportunities to educate about the problem of predation by feral cats and the benefits to native wildlife. Mulligans Flat, where the Australian Government provided assistance in fencing the reserve, attracts around 50,000 visitors per year.

In the Australian Government's national parks, much of Parks Australia's feral cat control work is underpinned by community engagement.

The Christmas Island Cat Eradication Program is only possible because of the foundation of support by the Christmas Island community. Christmas Island requires pet owners to register and desex all domestic cats on the island, and no new cats may be brought in.

As part of the Norfolk Island Cat Control Project a community engagement and education program is being undertaken in conjunction with the Norfolk Island Regional Council to strengthen domestic cat management and legislation, and increase awareness of the impacts of feral cats.

To reduce the risk of domestic cats in the Kakadu acting as a source of recruits to the feral population, the Director of National Parks provides some funding to Animal Management in Rural and Remote Indigenous Communities (AMRRIC), which sterilises cats and dogs in outstations across NT, including in Kakadu National Park.

An Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) national Pest Animal and Weed Management Survey of agricultural land managers in May 2016 identified that over 40 per cent of respondents were aware of feral cats on their properties in the last 12 months with over 65 per cent of these respondents indicating that feral cats presented a minor to major problem.

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

In brief:

The Department recognises domestic cats are important companion animals.

Campaigns focus on messaging that domestic cats are safe and happy at home, with the wildlife impact a secondary element, for effective engagement.

Curfews and containment by-laws for domestic cats are increasingly more common across local government areas but enforcement is under-resourced.

The Department does not support Trap Neuter Release as management for stray cats.

Successful feral cat eradications from inhabited islands must have a supportive community with no threat to domestic cats.

The Australian Government does not have any direct jurisdiction over domestic cats and is cognisant of the important part that cats play in our society and lives. In tackling the problems of feral cats, a separation is made from responsibly owned domestic cats. However, the Department works with organisations in their promotion of responsible cat ownership and where community education is required for projects such as feral cat eradication programs.

The Office of the Threatened Species Commissioner has funded a collaborative research project with the Tiwi Land Council, University of New England, Animal Management in Rural and Remote Communities and the Ark Animal Hospital aimed to reduce the potential impact of cats on native wildlife by promoting responsible cat ownership in the Tiwi Island community of Wurrumiyanga. The project used a variety of methods including a census of cats in the community, a questionnaire to ascertain attitudes towards cat ownership, community education, vet visits for free de-sexing and a cat roaming behaviour study using owned pet cats. The community education included pamphlets about cat de-sexing in the local language.

Social media is used by the Threatened Species Commissioner to support responsible domestic cat ownership. As mentioned in Term of Reference (g), the reach and engagement of these posts can be very high. An example of the social media posts about domestic cats is below.

Threatened Species Commissioner
May 8 · 🌐

New research from the Threatened Species Recovery Hub has estimated that roaming domestic cats are having a greater role in wildlife predation than previously thought.

The research compared the predation rates of domestic, stray and feral cats on native and introduced wildlife and sought to understand the toll that varying densities of cats in different landscapes are having.

Incredibly, the research estimated that the predation rates of pet cats per square kilometre in resi... [See More](#)



152,168 People Reached 19,522 Engagements [Boost Post](#)

👍👎👉 874 242 Comments 1,273 Shares

👍 Like 💬 Comment ➦ Share 🧑🏿▼

Threatened Species Commissioner Public
June 17, 2019 · 🌐

Compulsory de-sexing, registration and containment for pet cats! They are just some of the new rules which are being introduced to Bruny Island in Tasmania.

The new by-laws passed by Kingborough Council this week are bolstering responsible pet ownership amongst the island community and supporting efforts to combat the resident population of around 2000 feral cats on the island. This is the first time that a council in Tasmania has passed a cat control by-law.

In addition ... [See More](#)



ABC.NET.AU [About this website](#)

'Keep your cat on a lead': This island isn't pussyfooting in bid to curtail ferals

18,275 People Reached 6,675 Engagements [Boost Post](#)

👍👎👉 1.2K 147 Comments 399 Shares

The RSPCA has developed an approach to best practice management for domestic and stray (owned and semi-owned) cats that includes responsible cat ownership and containment and an approach for stray cats. Identifying Best Practice Domestic Cat Management in Australia was released in 2018. The Australian Government supported its development and the Feral Cat Taskforce has been briefed and consulted during development.

Zoos Victoria and RSPCA Victoria have joined forces to create a campaign about domestic cats called Safe Cat, Safe Wildlife (see https://www.safecat.org.au/) to provide cat owners with advice on the best care for their cats to have an enriched life contained at home. The goals of the campaign are improved wellbeing for domestic cats and protecting native wildlife. Tassie Cat (<https://www.tassiecat.com/>) is a campaign with the same goals in Tasmania as a state-wide initiative of the Tasmanian Government, NRM regions, RSPCA Tasmania, Just Cats Tasmania and Ten lives.

Another angle to community education about domestic cats has been programs that have worked with communities where domestic cats can roam. GPS tracking devices are given to domestic cat owners to put on their cats to observe their behaviours. For example, Land for Wildlife in Alice Springs ran a Domestic Cat Monitoring and Awareness program. The data showed owners that their cats roamed further than anticipated and sparked conversations about responsible domestic cat ownership.

State and Territory governments have legislation related to domestic cats, although Queensland's legislation does not include provisions for cat curfews, containment or confinement. Local governments in the Northern Territory can have local laws and regulations. Regulations typically contain provisions for registration, micro-chipping, de-sexing, and numbers of animals. The NESP Threatened Species Recovery Hub has surveyed local governments to understand by-laws and found that a small, but increasing, number of local governments in South Australia, New South Wales and

Western Australia have or are working towards introducing curfews or containment for domestic cats. For example: 17 new suburbs are cat containment areas in the ACT; 10 local government areas in Victoria, such as the Frankston City Council, have a dusk to dawn curfew and seven have a 24/7 curfew; Mt Barker District Council in South Australia has a night curfew; and a cat outside of its yard in Alice Springs can be impounded. Respondents to the survey have noted it takes significant time for individual local governments to establish by-laws relating to confinement and this may include several years of lobbying, public consultation and transition periods. Resources for compliance and enforcement of these by-laws is also challenging for local governments.

Stray cats are also outside of the Australian Government's jurisdiction but the ability for these cats to impact on native wildlife and easily make the transition to feral cats is recognised. Again, as with domestic cats, the Department supports efforts to get community members to fully own stray cats and provide for all their needs.

The Department does not support Trap Neuter and Release (or Return) of stray cats as effective programs require a well-defined and contained area with no immigration of other cats, where there is limited impact on wildlife and the wellbeing of the animals is able to be maintained. These requirements cannot be met in Australia. The expenditure of funds for the trapping and neutering would be better directed to education and supporting de-sexing of animals for low income earners to prevent further recruitment to stray populations.

Eradication campaigns on inhabited islands, such as Christmas, Bruny, French and Kangaroo Islands have all needed extensive community consultation and engagement prior to any feral cat control. A very high proportion of the community must understand the motivation for the program and want to see the feral cats eradicated and there must be no threat to their domestic cats. The specifics will vary between each island but must or can include:

- de-sexing of all domestic cats is essential to prevent any recruitment to the feral population. Free or subsidised de-sexing, which may include collecting and returning the animal, is common.
- Assistance with containment options, which can include education about how to make the transition to a contained cat and subsidised building of safe outdoor areas for the cat.
- A return policy for domestic cats that are captured in cage traps as part of an eradication program.
- A grandfathering clause where no new cats are brought to the island.

Eradication campaigns typically engage a specialist in behavioural science to design what is suitable for each island.

Resources and references

Information gathered from the following papers:

[Threatened Species Recovery Hub – NESP - Science for Saving Species Magazine Issue 14 March 2020](#)

[Woinarski, J, Murphy, B, Woolley, LA, Legge, S 2019, 'Research findings factsheet: The impact of cats in Australia', Threatened Species Recovery Hub, NESP, Project 1.1.2](#)

References:

Australian Government (2019) *Threatened Species Strategy Year Three Progress Report*. Department of the Environment and Energy, Canberra. Available at:

www.environment.gov.au/biodiversity/threatened/publications/threatened-species-strategy-year-three-progress-report

Australian Government (2015) *Threat Abatement Plan for Predation by Feral Cats*. Department of the Environment, Canberra. Available at:

www.environment.gov.au/biodiversity/threatened/publications/tap/threat-abatement-plan-feral-cats

Campbell, K.J., Harper, G., Algar, D., Hanson, C.C., Keitt, B.S., and Robinson, S. (2011). Review of feral cat eradications on islands. In: Veitch, C.R., Clout, M.N. and Towns, D.R. (Eds.) 2011. *Island invasives: eradication and management*. IUCN, Gland, Switzerland.

Carwardine, J., O'Connor, T., Legge, S., Mckey, B., Possingham, H.P. and Martin, T.G. (2011). *Priority threat management to protect Kimberley wildlife*. CSIRO Ecosystem Sciences, Brisbane.

Davies, H.F., McCarthy, M.A., Firth, R.S.C., Woinarski, J.C.Z., Gillespie, G.R., Anderson, A.N., Geyle, H.M., Nicholson, E., and Murphy B.P. (2016) Top-down control of species distributions: feral cats driving the regional extinction of a threatened rodent in northern Australia. *Diversity and Distributions*. DOI 10.1111/ddi.12522

Dickman, C.R., Glen, A.S., Jones, M.E., Soulé, M.E., Ritchie, E.G., & Wallach, A.D. 2014. *Strongly interactive carnivore species: maintaining and restoring ecosystem function*. In *Carnivores of Australia: past, present and future*. Edited by A.S. Glen and C.R. Dickman. CSIRO Publishing, Collingwood, Victoria.

Dickman, C.R., Legge, S., and Woinarski, J.C.Z. (2019) Assessing Risks to Wildlife from Free-Roaming Hybrid Cats: The Proposed Introduction of Pet Savannah Cats to Australia as a Case Study. *Animals*. 9, 795. DOI: 10.3390/ani9100795.

Dickman, C.R. & Newsome, T.M. 2014. Individual hunting behaviour and prey specialisation in the house cat *Felis catus*: Implications for conservation and management. *Applied Animal Behaviour Science*. DOI: 10.1016/j.applanim.2014.09.021.

Doherty, T.S., Davis, R., van Etten, E., Algar, D., Collier, N., Dickman, C., Edwards, G., Masters, P., Palmer, R., & Robinson, S. 2015. A continental-scale analysis of feral cat diet in Australia. *Journal of Biogeography*.

Esvelt, K.M., Smidler, A.L., Catteruccia, F., and Church, G.M. (2014) Emerging Technology: Concerning RNA-Guided gene drives for the alteration of wild populations. *eLife*. DOI 10.7554/eLife.03401.

Fancourt, B. (2014). Rapid decline in detections of the Tasmanian bettong (*Bettongia gaimardi*) following local incursion of feral cats (*Felis catus*). *Australian Mammalogy* 36. Pp 247-253.

Fancourt, B., and Jackson, R. (2014). Regional seroprevalence of *Toxoplasma gondii* antibodies in feral and stray cats (*Felis catus*) in Tasmania. *Australian Journal of Zoology*. DOI: 10.1071/ZO14015.

- Greenwell, C.N, Calver, M.C., and Loneragan, N.R. (2019) Cat gets its Tern: A case study of predation on a threatened coastal seabird. *Animals*, 9, 445. DOI: 10.3390/ani9070445.
- Hardman, B., Moro, D., and Calver, M. (2016). Direct evidence implicates feral cat predation as the primary cause of failure of a mammal reintroduction program. *Ecological Management and Restoration* 17, 2. Pp. 152-158. DOI: 10.1111/emr.12210.
- Helmstedt, K.J., Possingham, H., Brennan, K.E.C., Rhodes, J.R., and Bode, M. (2014). Cost-efficient fenced reserves for conservation: single large or two small? *Ecological Applications* 24(7), pp1780-1792.
- Hohnen, R., Tuft, K., McGregor, H.W., Legge, S., Radford, I.J., and Johnson, C.N. (2016) Occupancy of the Invasive Feral Cat Varies with Habitat Complexity. *PlosOne*. DOI: 10.1371/journal.pone.0152520.
- Holden, C., & Mutze, G. 2002. Impact of rabbit haemorrhagic disease on introduced predators in the Flinders Ranges, South Australia. *Wildlife Research*, Issue 29, pp. 615-626.
- Hradsky, B.A., Mildwaters, C., Ritchie, E.G., Christie, F., and Di Stefano, J. (2017) Responses of invasive predators and native prey to a prescribed forest fire. *Journal of Mammalogy*. DOI: 10.1093/jmammal/gyx010.
- Invasive Plants and Animals Committee (2016) *Australian Pest Animal Strategy 2017 to 2017*, Australian Government Department of Agriculture and Water Resources, Canberra.
- Leahy, L., Legge, S.M., Tuft, K., McGregor, H.W., Barmuta, L.A., Jones, M.E., Johnson, C.N. (2015). Amplified predation after fire suppresses rodent populations in Australia's tropical savannas. *Wildlife Research* 42, 705-716.
- Legge, S. et al. (2017). Enumerating a continental-scale threat: How many feral cats are in Australia? *Biological Conservation* 206, 293–303.
- McDonald, P.J., Stewart, A., Schubert, A.T., Nano, C.E.M., Dickman, C.R., and Luck, G.W. (2016) Fire and grass cover influence occupancy patterns of rare rodents and feral cats in a mountain refuge: implications for management. *Wildlife Research* 43, 121-129.
- McGregor, H.W., Legge, S., Jones, M.E., and Johnson, C.N. (2016) Extraterritorial hunting expeditions to intense fire scars by feral cats. *Scientific Reports*. DOI: 10.1038/srep22559.
- Moodie, E. 1995. *The potential for biological control of feral cats in Australia*, Unpublished report for the Australian Nature Conservation Agency, Canberra.
- Murphy, B.P., Wooley, L.-A., Geyle, H.M., Legge, S.M., Palmer, R., Dickman, C.R., Augusteyn, J., Brown, S.C., Comer, S., Doherty, T.S., Eager, C., Edwards, G., Fordham, D.A., Harley, D., McDonald, P.J., McGregor, H., Moseby, K.E., Meyers, C., Read, J., Riley, J., Stokeld, D., Trewella, G.J., Turpin, J.M., and Woinarski, J.C.Z. (2019). Introduced cats (*Felis catus*) eating a continental fauna: The number of mammals killed in Australia. *Biological Conservation* 237, 28–40.
- Parameswaran, N., O'Handley, R., Grigg, M., Fenwick, S., and Thompson, R. (2009). Seroprevalence of *Toxoplasma gondii* in wild kangaroos using an ELISA. *Parasitology International*, 58, pp. 161-165.
- Read, J. & Bowen, Z. 2001. Population dynamics, diet and aspects of the biology of feral cats and foxes in arid South Australia. *Wildlife Research*, Issue 28, pp. 195-203.
- Ruykys, L. and Carter, A. (2019). Removal and eradication of introduced species in a fenced reserve: Quantifying effort, costs and results. *Ecological Restoration and Management*. DOI: 10.1111/emr.12388.
- Saunders, G. & McLeod, L. 2007. *Improving fox management strategies in Australia*, Bureau of Rural Sciences, Canberra

Sharp, T & Saunders, G., 2008. *A model code for assessing the relative humaneness of pest animal control methods*. Australian Government Department of Agriculture, Fisheries and Forestry: Canberra.

Spencer, EE., Crowther, MS. & Dickman, CR. 2014. Diet and prey selectivity of three species of sympatric mammalian predators in central Australia. *Journal of Mammalogy*, December, Issue 95, Number 6, pp. 1278–1288.

Taggart, P. (2019) *Ecology of Cat-borne Parasitoses in Australia*. PhD Thesis, University of Adelaide, Adelaide.

Williams, K., Parer, I., Coman, B., Burley, J., & Braysher, M. 1995. *Managing vertebrate pests: rabbits*. Bureau of Resource Sciences and CSIRO Division of Wildlife and Ecology, Australian Government Publishing Service, Canberra Woinarski, J.C.Z. et al. (2017). Compilation and traits of Australian bird species killed by cats. *Biological Conservation* 216, 1–9.

Woinarski, J.C.Z., Burbidge, A.A., and Harrison, P.L. (2014) *The Action Plan for Australian Mammals 2012*. CSIRO Publishing, Melbourne.

Woinarski, J.C.Z., Burbidge, A.A., and Harrison, P.L. (2017) Ongoing unravelling of a continental fauna: Decline and extinction of Australian mammals since European settlement. *Proceedings of the National Academy of Sciences of the United States of America*. DOI:10.1073/pnas/1413011112.

Woinarski, J.C.Z., Legge, S., and Dickman, C. (2019) *Cats in Australia. Companion and Killer*. CSIRO Publishing, Melbourne.

Woinarski, J.C.Z., Murphy, B.P., Legge, S.M., Garnett, S.T., Lawes, M.J., Comer, S., Dickman, C.R., Doherty, T.S., Edwards, G., Nankivell, A., Paton, D., Palmer, R., and Wooley, L.A. (2017). How many birds are killed by cats in Australia? *Biological Conservation* 214, 76–87.

Woinarski, J.C.Z., Murphy, B.P., Palmer, R., Legge, S.M., Dickman, C.R., Doherty, T.S., Edwards, G., Nankivell, A., Read, J.L., and Stokeld, D. (2018). How many reptiles are killed by cats in Australia? *Wildlife Research* 45, 247–266.

Woolley, L.-A., Geyle, H.M., Murphy, B.P., Legge, S.M., Palmer, R., Dickman, C.R., Augusteyn, J., Comer, S., Doherty, T.S., Eager, C., Edwards, G., Harley, D.K.P., Leiper, I., McDonald, P.J., McGregor, H.W., Moseby, K.E., Myers, C., Read, J.L., and Riley, J. (2019). Introduced cats (*Felis catus*) eating a continental fauna: Inventory and traits of Australian mammal species killed. *Mammal Review* 49, 354–368.

Attachments

Attachment A: Threat abatement plan for predation by feral cats – implementation record

Objective 1: Effectively control feral cats in different landscapes

Action	Priority and timeframe	Output	Outcome	Responsibility	Progress to July 2020
1.1 Ensure broad-scale toxic baits targeting feral cats are developed, registered and available for use across all of Australia, including northern Australia.	Very high priority, medium term	Toxic baits available to registered users	Effective broad scale control programs using toxic baits can be undertaken in conservation areas	Bait developers and governments	Eradicat registered for south-west WA. Curiosity registered with the APVMA 24 January 2020. State/territory associated processes underway. Curiosity licenced for commercialisation. Hisstory cat bait in full development. Localised bait use under research permits: - Groote Eylandt - West MacDonnell Ranges - Taunton NP, Qld - Flinders Ranges NP, SA - Kangaroo Is, SA. Demonstrated effectiveness of aerial baiting using Eradicat in the Pilbara. CISS project for non-target species studies for Eradicat for all of Australia commenced.
1.2 Develop and register other cat control tools, including devices exploiting cat grooming habits.	Very high priority, medium term and ongoing	Tools available to registered users	Effective control programs using the tool can be undertaken	Tool developers and governments	Felixer grooming trap developed and an application for registration with the APVMA under assessment. Research permits for a number of sites around Australia. Felixer has been trialled in APY lands, Kangaroo Island. Use of tracking/ bailing dogs for feral cats. R&D on toxic trojans commenced.
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.	Very high priority, medium term	A clear understanding of how other predators influence and are influenced by management programs for feral	If suitable, land managers are able implement management programs for cats that have regard to other predators	Researchers and land managers	Quantifying responses of cats and foxes to baiting at Australian Wildlife Conservancy's Scotia, NSW/SA. NESP hub project (1.1.5). Effects of red fox control on the abundance, diet and use of space by feral cats. Molsher et al 2017 Monitoring and managing trophic interactions to maintain ecosystem functioning in arid Australian landscapes; Dickman et al.

Action	Priority and timeframe	Output	Outcome	Responsibility	Progress to July 2020
		cats			McDonald et al 2018 Diet of dingoes and cats in West MacDonnell Ranges, NT. Fighting over the scraps: scavenger interactions and the indirect effects of carrion; Dickman and Spencer. Project at Ethabuka to test the idea that dingoes can exclude cats from specific areas. NESP Hub project 1.1.11.
1.4 Continue research into understanding the role of other major landscape modifiers, such as fire or grazing by introduced herbivores, in cat activities and control.	Very high priority, long term	An understanding of how other landscape modifiers may impact on cat predation	Land managers are able to understand the impacts of landscape modifiers to better implement cat management programs.	Researchers and land managers	NESP Hub project (1.1.4). Managing feral predators and other processes to conserve threatened small vertebrates in the arid lands of South Australia. NESP Hub project (1.1.6) Integrated management of feral herbivore and feral predators. Roxby Downs, SA project on interaction between rabbit, mice control and cat/fox abundance. Project on managing fire regimes to include interactions with cats. Sites in NSW, Vic. and WA. NESP hub (1.3). Davies et al 2016: vegetation, fire & cat predation of brush-tailed rabbit-rat on Melville Is. Hohnen et al 2016 Occupancy of the invasive feral cat varies with habitat complexity. McGregor et al 2017 Fires scars Cape York Peninsula. GPS movement data selecting for recent (<3 mo) fire scars, and open wetlands.
1.5 Continue research into the scale, efficiency, cost-effectiveness, sustainability and risks of feral cat control options	High priority, medium term	Knowledge about effective feral cat control options suitable for different sites	Land managers are able to understand the complexities of different control method choices and implement effective options.	Researchers and land managers (including groups, NRM bodies and individuals)	Determining effectiveness of feral cat control options in Queensland. Includes testing of Eradicat in various locations and examining vegetation structures. A NESP hub project (1.1.3). Optimise cat baiting in the Pilbara. NESP hub project (1.1.7) Kangaroo Island isthmus project collaring cats to understand their movements. NESP hub projects investigating use of islands and fences for threatened species. Guardian dogs – Eastern Brown Bandicoot protection project (via sheep) in Vic. Peter Spencer (2015, 2016), Murdoch: DNA analysis of feral cats shows a genetic population that is the effective size of the continent.

Action	Priority and timeframe	Output	Outcome	Responsibility	Progress to July 2020
					Hardman et al 2016. Characteristics of feral cat predation on banded hare wallabies. Roxby Downs – low level predation selected for longer hind foot lengths in <i>Bettongia lesueur</i> (Moseby et al 2018). Also produced increased wariness, greater flight initiation distances, and slower to approach feed trays (West et al 2018).
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.	Medium priority, medium term	New or enhanced attractants available	More effective control and monitoring for cats	Researchers for development and product manufacturers	A plant from Christmas Island being tested as an attractant.
1.7 Research into other control and monitoring technologies and enhancing available technology	Medium priority, long term - ongoing	New tools for control and monitoring of cats	Greater range of options for land managers to control and monitor cats	Researchers and product manufacturers	Improvements to camera trapping – broader than cats. Including array arrangements, machine learning responses, scaled monitoring. Other tools may include aversion devices, Wireless Identification tags (WIDs) (e.g. Wild Spy). Gene drive technology may be investigated for feral cats. Consideration of regulation and social acceptability for gene drive technology is underway. The Meeting of Environment Ministers in November 2019 agreed to establish a working group to identify and evaluate potential new feral cat control strategies, including strategies based on synthetic biology, and report back to the next meeting of MEM.
1.8 Re-investigate diseases and other potential biocontrol agents, biotechnology and immunocontraceptive options for cats, and commence research on promising options. Undertake social research on promising options to gauge community support.	High priority, long term - ongoing	Report outlining potential biocontrol options for cats. If appropriate, a long-term research project commenced.	Stakeholder understanding of the potential for biocontrol for cats. Start of research into promising biocontrol agent(s).	Government and researchers	A PhD project is underway at University of Melbourne. CSIRO hosted a gene technology workshop (Feb 20) that considered a variety of pest species.
1.9 Code of Practice and/or Standard	High priority,	Code of Practice	Control of feral cats	Product	SOP developed for baiting using PAPP.

Action	Priority and timeframe	Output	Outcome	Responsibility	Progress to July 2020
Operating Procedures developed for new tools and agreed by governments	short-medium term. Ongoing for new tools as they are developed.	or Standard Operating Procedures available for all control tools	is undertaken in an effective manner as humanely as possible	developers and governments	Humaneness assessment complete for baiting using PAPP (Curiosity). A relative welfare assessment for Hisstory (encapsulated 1080) baiting was undertaken (Feb 20) by a panel according to the Sharp and Saunders 2011 method.

Objective 2: Improve effectiveness of existing control options for feral cats

Action	Priority and timeframe	Output	Outcome	Responsibility	Progress to July 2020
2.1 Understand motivations and provide incentives for land managers to include feral cat management into standard land management for biodiversity outcomes	High priority, short term	Options for providing incentives to land managers for cat control	A greater proportion of land managers undertaking effective cat management	Social scientists, social psychologists, and governments	Invasive Animals CRC project 'facilitating effective community action'. Adelaide University PhD formulating the social dimension of feral cat control on Kangaroo Island. ABARES project surveying on pests and weed management survey. RMIT report on social drivers related to cats.
2.2 Provide information, in various media and through training, on best practice methods and standard operating procedures for controlling and monitoring feral cats	High priority, medium term	Training material is available to land managers on how to effectively control and monitor feral cats and their impacts	Land managers running management programs for feral cats can effectively design and adapt the program	Researchers in association with communications or education specialists to develop the material. Delivery by government, NGOs, NRM groups, Invasive Animals CRC or Centre for Invasive Species Solutions, and other appropriate organizations.	Training or support for rangers to track feral cats. Standard Operating Procedure for feral cat baiting using PAPP written. WA have a Standard Operating Procedure for Eradicat baiting. 1080 toxin: IACRC animation about 1080. A full assessment of 1080 welfare impacts on feral cats through a pen trial has been conducted.

Action	Priority and timeframe	Output	Outcome	Responsibility	Progress to July 2020
				Land managers for uptake.	
2.3 Ensure areas prioritised for feral cat management across Australia maximise benefits to biodiversity at a local, regional and national level	Very high (for an initial reprioritisation) to medium priority, long term – ongoing	An understanding of how management programs provide effective threat abatement on all scales	A holistic approach to cat management for threat abatement	Governments in association with land managers conducting management programs and regional groups (e.g. NRM bodies)	Compiling and publishing feral cat abundance data. NESP hub project 1.1.2 Bird analysis: Woinarski et al 2017 papers. How many cats; compilation and traits of bird species. Reptile analysis paper to be published soon. Western Australia has establishing a state taskforce for implementation of feral cat control.
2.4 Governments agree to consistent legislation that identifies feral cats as a pest, has requirements for control, and identifies control techniques that may be used	High priority – short term	Consistent legislation for feral cats	Land managers in all states and territories legally able to undertake effective control of feral cats	Governments	The Victorian Government declared feral cats to be a pest on public land. The Western Australian Government has declared feral cats as a pest. Tasmania has new legislation that allows landholders to trap and seize cats on private land. Darwin, NT, has a new bylaw requiring cats to be contained to their property.

Objective 3: Develop or maintain alternative strategies for threatened species recovery

Action	Priority and timeframe	Output	Outcome	Responsibility	Progress to July 2020
3.1 Eradicate, or control, cats on offshore islands of high, or potentially high, biodiversity value	Very-high priority, long term	Cats eradicated or under sustained control on offshore islands	Cat-free islands where threatened species can be recovered	Island owners or managers, including governments where they are managers	NESP hub project prioritising islands – broader than cats. Five islands: Threatened Species Commissioner's project: Christmas, Dirk Hartog, Kangaroo, French, Bruny islands. Dirk Hartog Island: Declared feral cat free in late 2018. Workshop in June 2017 on Kangaroo Island to transfer cat control knowledge. Kangaroo Island: Non-toxic bait trails to be undertaken where KI dunnarts, bandicoots and bush rats detected to measure uptake.

Action	Priority and timeframe	Output	Outcome	Responsibility	Progress to July 2020
					KI NRM started eradication of feral cats from the Dudley Peninsula. French Island: Technical feasibility study confirmed eradication is feasible when baits and leghold traps are available. Legge et al 2018 paper Havens for threatened Australian mammals: contributions of fenced areas and offshore islands to protection of mammal species susceptible to introduced predators.
3.2 Establish, enhance or maintain biosecurity measures for cat-free offshore islands to prevent incursions	Very high priority, short term	Cat-free offshore islands have biosecurity measures	Cat-free islands remain cat free	Island owners or managers and all visitors	Dirk Hartog Island has biosecurity measures in place.
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	Very high priority, medium term	Fenced reserves created and maintained for key threatened species populations	Preventing localised extinctions. Threatened species recovery for species under greatest pressure by predation by feral cats	Government and non-government conservation land managers	Newhaven is fenced April 2018. Wild Deserts (Sturt NP) fenced December 2018. Richard Underwood built. Pilliga built. Wandiyali feral free area is being built. Seven new fenced areas coming online in the future including Mallee Cliffs, Mallee Refuge, and Tiverton. DAWA are developing guidelines for the \$10 m Safe Havens Project election commitment.
3.4 Research methods to understand thresholds of cat abundance required to improve survival rates for threatened species heavily preyed upon by feral cats. Research ways in which adaptation by threatened species may improve survival rates.	High priority, long term - ongoing	Use of alternative methods (to cat management actions or exclusion fencing) for threatened species protection	More resilient populations of threatened species to the effects of cat predation	Researchers	Arid Recovery Tackling Prey Naiveté (bettongs) See A1.5 (Moesby et al 2018 and West et al 2017) University of Queensland is studying the knockdown of cats. A modest knockdown of cats at Taunton did not show flow-on effects to the nail-tailed wallabies. Too many other background events. Radford et al 2018. Degrees of population-level susceptibility of Australian terrestrial non-volant mammal species to predation by the introduced red fox and feral cat.
3.5 Continue research into cat diseases, including <i>Toxoplasma gondii</i> and sarcosporidiosis, their prevalence, ability to transmit to other species	High priority, medium term	An understanding of cat diseases and their impacts	Impact of disease transmission from feral cats is mitigated	Researchers and land managers	Dybing et al 2016 – investigations of trypanosomes in feral cats on Christmas Island and WA. Impact on have species. Dybing et al 2018 – investigated helminth parasites in feral cats on Christmas Island.

Action	Priority and timeframe	Output	Outcome	Responsibility	Progress to July 2020
(including livestock and humans) their impacts, and ways to mitigate the impacts.					Meat and Livestock Australia are looking at the disease impacts of predators. There is a PhD on Kangaroo Island looking at toxoplasmosis and scariosporidiosis. Phillip and French Islands are working on toxoplasmosis.

Objective 4: Increase public support for feral cat management and promote responsible cat ownership

Action	Priority and timeframe	Output	Outcome	Responsibility	Progress to July 2020
4.1 <i>Quantify the proportion of the domestic and stray cat population that transitions to the feral cat population</i>	Medium priority, short term	An understanding of the transition between domestic, stray and feral populations	Factors affecting the transition between domestic, stray and feral populations understood and addressed. Information for communities to understand the links between domestic and feral animals.	Researchers and governments	Impact of peri-urban cats incl. Contribution that domestic make to maintaining strays. NESP hub project 1.1.9.
4.2 Promote to and seek engagement of the community in: - an understanding of the threat to biodiversity posed by cats and support for their management; - an understanding of the transitions between domestic, stray and feral cats, and the need for responsible ownership; - support for the containment of domestic cats where their roaming may impact on identified conservation areas	High priority, short term - ongoing	Further education materials developed and utilised	Community support for the control of feral cats. Community ownership and responsibility for domestic and stray cats.	Governments and community (including community leaders such as pest control officers, vets, NRM bodies)	Community engagement through FeralCatScan. Note: control data not publicly available. Sighting and damage visible on website. Kangaroo Island have a group under FeralScan for feral cats. Zoos Victoria campaign in late 2017 about domestic cats. Adelaide Hills Council support a bylaw for 24/7 cat confinement. Swarbrick and Rand 2018. Study of Trap Neuter Release at UNSW Kensington campus. RPSCA have a regular teleconference of a cat management group within their organisation. A second version of the Cat containment guide to be launched. NESP Hub publication on the impact of cats in Australia.

Action	Priority and timeframe	Output	Outcome	Responsibility	Progress to July 2020
4.3 Promote and seek community engagement on the reduction of food and other resources to stray cats	High priority, medium term	Education material developed and utilised	Reduced availability of resources for stray cats	Governments and community	WA Department of Environmental Regulation Waste Management Policy requires WA Councils to submit returns on cats removed. Buller and Hotham resorts are reducing their waste resources to limit feral cats around the resorts. To protect the mountain pygmy possum.
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	High priority, short term	Communication campaign undertaken	Community understanding of the need for feral cat control and are supportive	Government	Planning for campaign around Curiosity bait commenced.

Attachment B: Case study of recovery actions

Central rock-rat (*Antina*, *Zyzomys pedunculatus*)

The central rock-rat is endemic to the southern Northern Territory and found in the MacDonnell Ranges. The key threats to the central rock-rat are predation and wildfire.

This species is listed as a critically endangered threatened species under the EPBC Act. Listing a threatened species triggers management planning action. A national Recovery Plan was identified as required in 2007 and a statutory Recovery Plan for the central rock-rat, written by the Northern Territory Department of Environment and Natural Resources, was adopted under the EPBC Act in 2019. Two Threat Abatement Plans, for predation by feral cats and predation by the European red fox, are identified as being relevant to this species.

The main objectives over the 10-year life of the recovery plan include the research, development and implementation of management actions to abate threats and ensure suitable habitat is available for the species and establish an additional viable central rock-rat population. The plan states predation by feral cats is a key threat to the central rock-rat and poses a very high to extreme risk of extinction. Central rock-rat remains have been recovered from cat scats collected in core rock-rat habitat and there is evidence that cats target rock-rats over alternative small mammal prey.

The Recovery Plan identifies actions necessary for the plan to be successful. The feral cat actions are:

1. Undertake experimental management of feral cats around core central rock-rat populations and measure response through changes in occupancy.
2. Investigate the spatial ecology of central rock-rats and feral cats in core refuge areas.

The plan estimates the costs of management to be approximately \$50,000 per year, although this must be more flexible than an annual cost due to the boom-and-bust population cycle of central rock-rats. The plan estimates a cost of \$300,000 over three years to investigate the spatial ecology. In addition, the appropriate use and management of fire and establishing a second secure population are also recognised as necessary actions.

The Threatened Species Recovery Fund has invested into the recovery of the central rock-rat, including the trial of feral cat baiting around key sites in the West MacDonnell Ranges.

Funded projects are:

2016-18 Strategic targeted baiting of feral cats and associated responses of threatened species to cat control efforts in core habitat areas in the MacDonnell Ranges NT

2018-19 Baiting to reduce feral cat densities in high priority areas and secure populations of the central rock-rat in the wild.

2018-23 Implementation of strategic management actions for the central rock-rat including predator (cat) control at trial sites in the MacDonnell Ranges and investigate small scale burning.

Attachment C: National Landcare Program projects 2014-2023

Many projects have a goal to restore a site and the management of feral cats will only be one component in the activities being undertaken. The funding for each project is not broken down into each component so the funding should not be interpreted as entirely for feral cat management activities. Rows shaded yellow are projects where the main objective is related to feral cats.

Sub-program	State	Organisation	Name	Description	Project date	Funding
25th Anniversary Landcare Grants 2014-15	WA	Wadderin Wildlife Reserve and Sanctuary	Wadderin Sanctuary - Feral Cat, Rabbit and Kangaroo Control for Conservation	This project will engage skilled contractors to complement community activity in baiting, trapping and shooting of feral cats , rabbits and Western Grey Kangaroos to protect eight species of mammals and birds that have been re-introduced to Wadderin Wildlife Reserve. These include the Woylie (<i>Bettongia penicillata</i>), Red-tailed Phascogale (<i>Phascogale calura</i>), Banded Hare-wallaby (<i>Lagostropus fasciatus</i>), Western Brush Wallaby (<i>Macropus irma</i>), Malleefowl (<i>Leipoa ocellata</i>) and Bush Stone-curlew (<i>Burhinus grallarius</i>). The predator-proof fence of the enclosure will be maintained and success in reducing feral animal numbers will be monitored and evaluated.	14/04/2015 - 30/06/2016	\$19,960
25th Anniversary Landcare Grants 2014-15	Qld	SOUTH WEST NRM LTD	Caring for Currawinya - Pest and Weeds Mitigation	This project will control feral animals (foxes, wild dogs, cats, pigs) and weeds (<i>Cylindropuntia</i> and <i>Opuntia</i> species) and monitor pest populations and threats. The project will also undertake on-ground works to restore river/stream banks and threatened species habitat, and will improve water quality. A variety of methods will be used, including: plant propagation; revegetation; re-instating natural hydrology; protecting breeding, resting and feeding areas of threatened species; and erosion control. The wider community will be educated through workshops demonstrating the feral animal control and erosion mitigation practices implemented and the unique value of the Currawinya National Park Ramsar wetlands.	16/03/2015 - 29/09/2016	\$11,000
25th Anniversary Landcare Grants 2014-15	Vic	ELLA GAYE BOYEN	Langwarrin Woodlands Restoration	This project will implement a programme of weed and pest animal control on private land in the Langwarrin Woodlands in Victoria. This project will target: removal of invasive weeds (<i>Sallow Wattle</i> and <i>Pittosporum</i>); flushing out of rabbit warrens; and eradication of foxes and feral cats . This will prevent further erosion of the pleistocene sand dunes and allow for the regeneration of native flora (<i>Wedding Bush</i> , <i>Boronia Muelleri</i> and <i>Cyathea Australis</i>) and recovery of fauna (sugar gliders, New Holland Mouse, echidnas, skinks, lizards, and local wallabies). Activities will be undertaken in partnership with nearby landholders for greater impact and	05/03/2015 - 30/06/2016	\$11,500

Sub-program	State	Organisation	Name	Description	Project date	Funding
				community capacity will be built through educational events/field days and an online forum.		
25th Anniversary Landcare Grants 2014-15	Vic	BEAM MITCHELL ENVIRONMENT GROUP INC	Trapping Feral Cats and Freeing Small Mammals in the Broadford Area	This project will raise awareness of the damage caused by feral cats to native fauna, will implement actions to reduce their numbers in the Broadford area, and will conserve threatened species. A community education program including pamphlets, displays and field days will raise awareness of biodiversity issues and the harm caused by feral cats. Cat traps will be circulated throughout bushland properties to reduce predation and to encourage breeding of small mammals, birds, reptiles and frogs. Nest boxes to provide habitat will be constructed by local mens sheds and field days will be held to install them. These will benefit Brush tailed phascogales, Dunnarts, Swift Parrots, Diamond Firetail Speckled Warblers and Growling Grass Frogs.	16/04/2015 - 30/06/2016	\$20,000
25th Anniversary Landcare Grants 2014-15	Qld	South West NRM Ltd	Southern Charleville Landcare	The South Charleville Landcare Group will undertake this project with the sponsorship of South West NRM Ltd. This project will undertake control of feral animals (including feral cats, pigs, foxes, rabbits and wild dogs) and invasive weeds in the Charleville region. Coral Cactus, Hudson Pear and Mother of Millions are among the weeds targeted. The project will also undertake minor earthworks to prevent erosion and revegetate degraded land and riparian zones in the area (using seed and seedlings) to rehabilitate them.	05/05/2015 - 30/06/2016	\$16,500
25th Anniversary Landcare Grants 2014-15	ACT	CAPITAL WOODLAND AND WETLANDS CONSERVATION ASSOCIATION_INC	Mulligans Flat Woodlands Sanctuary - Reintroducing Endangered Bush Stone-curlews	This project will halt the decline of the Bush Stone-curlew by re-introducing the Bush Stone-curlew into part of its former range in southern NSW and the ACT. As a starting point, this will be done using Mulligans Flat Woodlands Sanctuary, a predator-free reserve. The project involves breeding, re-introductions of the birds, and associated monitoring, fox and cat control , and community engagement. The longer-term plan is to re-introduce batches of birds in Spring each year for the next 3 years, with 10-12 released each year, until a genetically robust breeding population can be established within the sanctuary, from which offspring will disperse into the broader landscape.	27/04/2015 - 30/06/2016	\$21,780
25th Anniversary Landcare Grants 2014-15	NSW	MALLEE DISTRICT ABORIGINAL SERVICES LIMITED	Menara Station - Waddy Creek Wetland and Creek Area Restoration	This project will rehabilitate areas of remnant native vegetation and wetlands on Menara Station, specifically the Waddy Creek frontage along both sides of the creek to address impacts on remnant vegetation in areas devoid of native shrub species and to protect threatened species such as the endangered Australasian Bittern, endangered Bush Stone Curlew and other listed threatened species. Activities will include pest animal control of rabbits, foxes and cats	11/05/2015 - 30/06/2016	\$21,670

Sub-program	State	Organisation	Name	Description	Project date	Funding
				using baiting, harbour destruction and fumigation; and weed control on infestations of African Boxthorn. These activities will create an environment for further enhancement through natural revegetation and future revegetation projects.		
25th Anniversary Landcare Grants 2014-15	NSW	DRY RIVER LANDCARE GROUP	Dry River Catchment Community Invasive Species Mapping and Management Project	This project will engage landholders in the Dry River Catchment in targeted surveying, mapping and control of local weeds of concern (including African Lovegrass) and feral animal populations (focussing on cats and foxes) . A local project officer will be employed to coordinate a catchment-wide approach to the management of these invasive species, involving the landholders in the planning and delivery. The project will build community awareness and involvement in natural resource management and appropriate management of invasive species consistent with local strategies.	26/03/2015 - 29/08/2016	\$16,570
Local Programmes	TAS	Upper Meander Catchment Landcare Group	Eradication of Feral Cats in Northern Tasmania through Community Engagement	This project will remove a significant number of feral cats from the meander valley area, reducing the threat to all locally present threatened species including eastern barred-bandicoot, eastern quolls and swift parrot. This program will also support community led initiatives and citizen science, allow for measurement of reduction in cat densities and support an increase in community awareness of the feral cat problem in the Northern Tasmania.	03/04/2017 - 29/06/2019	\$90,000
Local Programmes	NT	Territory NRM	West Island Feral Cat Eradication	The project will remove the threat of cat predation from West Island, and will enable additional mammal surveys to be conducted to determine whether any remnant populations of phascogale exist on the island. If the species is found to be locally extinct there will be the opportunity to re-establish a population when the island regains its cat-free status. West Island is also a major breeding site for Flat back Turtles. Elsewhere cats have been shown to be significant predators of turtle hatchlings, so this project will remove the potential for this threat to occur.	01/06/2017 - 30/06/2018	\$210,000
Local Programmes	VIC	Port Phillip and Westernport Catchment Management Authority	French Island – Free from Feral Cats	This project will directly contribute to the Threatened Species Strategy by enabling the local community to eradicate feral cats from French Island, Victoria, and benefit the Eastern Curlew, Orange-bellied Parrot and Eastern Barred Bandicoot. It will achieve this by using best practice management, monitoring and community engagement to undertake feral cat management across 17,000 hectares of private and public land on the island.	01/06/2017 - 30/12/2018	\$160,000
Local Programmes	QLD	BUSH HERITAGE AUSTRALIA	Bringing Alwal Home	This project will contribute towards a larger, five-year project that aims to improve the breeding success of, and habitat for, the colourful Golden-shouldered Parrot (<i>Psephotus chrysopterygius</i>); or	01/06/2017 - 30/12/2018	\$90,000

Sub-program	State	Organisation	Name	Description	Project date	Funding
				<p>‘Alwal’), by implementing actions that support the Recovery plan for the golden-shouldered parrot (<i>Psephotus chrysopterygius</i>) 2003-2007.</p> <p>The species is listed as Endangered under the Environment Protection and Biodiversity Conservation Act 1999, is included as a priority bird species in the Threatened Species Strategy Action Plan 2015-16 – 20 birds by 2020, and has cultural significance to the Olkola people of the central Cape York Peninsula. The Parrot population has declined to fewer than 2,000 individuals, restricted to two main populations (Morehead and Staaten) over an area of about 1,680 km² in central Cape York Peninsula. Decline is partly due to encroachment of Paperbark Tea Tree (<i>Melaleuca viridiflora</i>) into its tropical grassy savannah breeding habitat, reducing the amount of important grass species and seeds and providing habitat for predators, such as the Pied Butcherbird (<i>Cracticus nigrogularis</i>) and feral cats.</p> <p>The project will employ a Project Manager who will work with an Olkola Land Managers Team (overseen by the Olkola Aboriginal Corporation) to develop and trial feral cat control options for two key Alwal breeding locations on Olkola Country and produce a predator abatement strategy for these areas. Conditions required to undertake burning regimes that effectively reduce <i>Melaleuca viridiflora</i> encroachment on breeding areas and improve Alwal habitat will be investigated and burns undertaken. Supplementary feeding will be provided to support vulnerable juveniles survive during periods of food shortage. Monitoring of the species (including breeding success, predator impacts, habitat and trends), will complement the activities undertaken.</p>		
Local Programmes	SA	ROYAL ZOOLOGICAL SOCIETY OF SOUTH AUSTRALIA INCORPORATED	Returning Warru to Country	<p>Warru (black-footed rock-wallaby) are one of Australia’s most threatened mammals. Reintroduction of the warru has been identified by the Warru Recovery Team (WRT) as a key conservation action needed to support the recovery of this species. Warru will be reintroduced to Wamitjara, to strengthen the Musgrave Ranges metapopulation and create an additional viable population of warru within their former range. Research and an adaptive management approach will provide important outcomes to inform future reintroductions. A critical component of this project is the management of key threatening processes. Feral cats and foxes will be targeted around warru colonies using baiting, shooting, trapping and new technologies such as Felixer grooming traps.</p>	01/06/2017 - 30/06/2018	\$200,000

Sub-program	State	Organisation	Name	Description	Project date	Funding
				Invasive buffel grass will be managed using herbicides with broad-scale application over large areas to target priority sites.		
Local Programmes	WA	FOUNDATION FOR AUSTRALIA'S MOST ENDANGERED SPECIES INCORPORATED	Numbat Protection Dog	To be completed	01/06/2017 - 30/06/2018	\$60,000
Local Programmes	TAS	Department of Primary Industries, Parks, Water and Environment	Bruny Island Feral Cat Management Project	The project will support the eradication of feral cats from Bruny Island, complementing the Progressing Feral Cat Eradication on Bruny Island – A Threatened Species Strategy Project by: a) establishing a baseline estimate of feral cat numbers and spatial distribution at the “The Neck” (narrow land which links northern and southern Bruny Island) and priority locations on northern Bruny Island; b) establishing a baseline estimate of identified threatened and migratory species at risk from feral cat predation at “The Neck” and priority locations on northern Bruny Island; c) the development of a robust research and monitoring implementation strategy that ensures data collation is fit-for-purpose for assessing the impact of feral cat control, and any flow on response of control to key identified native fauna and other feral cat prey e.g. rats, rabbits; and d) providing resources to support targeted on-ground feral cat control including traps, tracking collars, data logging equipment.	01/01/2017 - 29/06/2018	\$181,500
Local Programmes	ACT	ACT Environment and Planning Directorate - Departmental	Cat Tracker Project	The project will support the ACT Government polices and programs aimed at reducing predation by cats on native animals and assist efforts in managing issues around the domestic cat ownership across the ACT. This project will do this through a combination of activities to increase understanding of cat management including tracking cats and undertaking a social survey of ACT residents.	01/07/2017 - 30/06/2018	n/a
Local Programmes	SA	INVASIVE ANIMALS COOPERATIVE RESEARCH CENTRE	Feral cat mobile app and national monitoring system – Feral Catscan	Feral CatScan is a national feral cat mapping system for landholders, community groups, local councils, indigenous groups, NRM organisations and pest managers expertise to record and centralise real-time information about feral cat activity (including cat impacts on native species). Feral CatScan will be trialled for projects that aim to implement regional cat management plans at Kangaroo Island and engages	01/04/2015 - 30/06/2016	n/a

Sub-program	State	Organisation	Name	Description	Project date	Funding
				the public in the plan at the early stages before rolling out nationally.		
Local Programmes	NSW	Office of Environment and Heritage	Turning around trajectories: Detection dogs to aid feral cat and fox control for the Mountain Pygmy-possum and Smoky Mouse	The Mountain Pygmy-possum (<i>Burramys parvus</i>) and the Smoky Mouse (<i>Pseudomys fumeus</i>) are two Endangered small mammals from South Eastern Australia for which National Recovery Plans have been prepared under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act), yet their numbers continue to decline. Both species are severely impacted by Predation by the feral Cat and Predation by the European Red Fox <i>Vulpes vulpes</i> . This project aims: To develop more effective control of feral cats and foxes by using trained cat and fox detection dogs to aid in the location of these predators. To reverse population declines in The Mountain Pygmy-possum and the Smoky Mouse. To locate new populations of Smoky Mice with the aid of detection dogs.	01/04/2015 - 29/06/2016	\$140,000
Local Programmes	NT	DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES	Establishment of a large feral-free area at Newhaven Wildlife Sanctuary	This Activity involves the establishment of an 8,000 hectare feral cat and fox-free area at Newhaven Wildlife Sanctuary in the Northern Territory.	31/12/2015 - 29/06/2018	\$750,000
Local Programmes	NT	DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES	Groote Island Biodiversity Initiative	The project will collate data on threatened species and feral cats on Groote Island, evaluate the impact of feral cat baiting on both cats and identified threatened species.	07/01/2016 - 29/06/2018	n/a
Local Programmes	NT	DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES	Control of feral cats to protect threatened mammal species in the MacDonnell ranges, Central Australia	This project will assess the response of feral cats to strategic targeted baiting and associated responses of threatened species to cat control efforts in core habitat areas in the MacDonnell Ranges NT.	31/12/2015 - 29/06/2018	\$50,000
Local Programmes	WA	WA WILDLIFE	Threatened animal recovery through feral cat control in Western Australia	This project will implement landscape-scale feral cat control, using Eradicat , integrated with fox control at high priority native animal conservation sites in the northern jarrah forest, semi-arid zone (Midwest), wandoo woodland and south coast regions of Western Australia. The project also aims to translocate several threatened animal species, including woylies (critically endangered), black-flanked rock-wallabies (vulnerable) and/or numbats (vulnerable).	27/02/2016 - 29/06/2018	n/a

Sub-program	State	Organisation	Name	Description	Project date	Funding
				Native and introduced animal species will be monitored in target areas using trapping and remote cameras to determine the effectiveness of integrated feral cat and fox control in native animal recovery. The project will also raise community and landholders' awareness about the impact of feral cats and foxes on native animals and recovery actions for threatened species.		
Local Programmes	WA	WA WILDLIFE	Field efficacy testing of a hybrid Curiosity 1080 feral cat bait in the Kimberley	This project will undertake a field efficacy trial of a hybrid Curiosity 1080 feral cat bait in the Kimberley including collaboration with and training for Aboriginal rangers regarding feral cat management in the Kimberley. The operational trial will monitor feral cats and native non-target species using remote cameras and tracking collars on feral cats and northern quolls.	27/02/2016 - 29/06/2019	\$250,000
Local Programmes	SA	Department for Environment and Water	Optimising Grooming traps for targeted feral cat control	This project will fund the continued development, production and trial of optimized grooming traps for the control of feral cats. Initial field trials will be undertaken in the Flinders Ranges National Park to support the western quoll and brush-tailed possum reintroduction programmes and the existing yellow-footed rock wallabies.	01/07/2015 - 30/06/2016	n/a
Local Programmes	WA	Central Desert Native Title Services	Support for the Indigenous knowledge Bilby Festival	This project will support the Indigenous Bilby Knowledge Festival scheduled for 20-24 June 2016. The core aim of the festival is to build a shared understanding of management actions achievable on Aboriginal lands, the training and resources required for effective programs and the key knowledge gaps. The event will be held in core bilby habitat on the Kiwirrkurra Indigenous Protected Area in the Gibson Desert. The festival will produce a framework for effective, collaborative management of wild bilby populations across the Australian deserts. It will draw on existing and developing partnerships between Aboriginal land managers, scientists and research institutions, with key experts contributing to the program	06/05/2016 - 01/08/2016	n/a
Local Programmes	SA	DEPARTMENT FOR ENVIRONMENT AND WATER	Feral Cat Eradication on Kangaroo Island	This project will trial a range of existing and innovative feral cat control techniques to gather the required knowledge to implement full cat eradication in the future. Baseline monitoring of feral cat and prey abundance will be established to assess the effectiveness of feral cat control and assess any perverse outcomes, such as impacts on non-target species. Abattoir surveillance records and wildlife and livestock sampling will be used to investigate and monitor the incidence of diseases such as Toxoplasmosis and Sarcosporidiosis in response to cat control.	09/05/2016 - 30/12/2017	\$500,000

Sub-program	State	Organisation	Name	Description	Project date	Funding
				A communications strategy will be implemented to maintain ongoing community support for feral cat control on Kangaroo Island (KI). Strategies will also be developed for the complete phasing out of domestic cat ownership on KI.		
Local Programmes	QLD	Australian Wildlife Conservancy	Establishment of a feral predator-free area at Astrebla Downs/Diamantina National Parks	The project will deliver ongoing predator control at the Queensland reserve Astrebla Downs and Diamantina to reduce key threats associated with cat predation for four EPBC species: Greater Bilby (<i>Macrotis lagotis</i>); Kowari (<i>Dasyuroides byrnie</i>), Plains Mouse (<i>Pseudomys australis</i>); and the Plains Wanderer (<i>Pedionomus torquatus</i>).	01/08/2015 - 29/12/2018	n/a
Local Programmes	QLD	AUSTRALIAN WILDLIFE CONSERVANCY	Implementation of dedicated management for a nationally threatened species hotspot at Mt Lewis, Mt Spurgeon and Mt Windsor National Parks	The project will reduce key risks associated with habitat loss for 16 EPBC listed species through improved fire management and weed control at Mt Lewis, Mt Spurgeon and Mt Windsor National Parks in Queensland. Species that will benefit from this include the: Northern Bettong, Little Waterfall Frog, Northern Quoll, Mountain Mistfrog, Spotted-tailed Quoll, Waterfall Frog, Yellow-bellied Glider, Common Mistfrog, Greater Glider, Australian Lacelid, Black-footed Tree-rat (listed under Mammal Action Plan) Northern Tinkerfrog, Spectacled Flying Fox, Sharp-snouted dayfrog (PE), Greater Large-eared Horseshoe Bat, Southern Cassowary, Red Goshawk.	01/08/2015 - 29/12/2018	n/a
Local Programmes	TAS	Department of Primary Industries Parks Water and Environment	Progressing feral cat eradication on Bruny Island - a Threatened Species Strategy project	The project will support the eradication of feral cats from Bruny Island by the Tasmanian State Government, relevant local government and local community through: (a) a substantive, demonstrable reduction of feral cat numbers in areas critical to the ongoing survival of nationally listed threatened species including priority species in the Threatened Species Strategy; (b) establishing active universal adoption of responsible cat ownership within the Bruny Island community and high levels of community participation in activities to remove feral cats from the Island; and (c) establishing the framework and strategy for the ongoing program required to achieve feral cat eradication on the island.	30/06/2016 - 30/06/2019	n/a
Local Programmes	WA	Central Desert Native Title Services Limited	Matuwa Kurrara Kurrara two-way science project - protecting threatened species	Martu Traditional Owners will lead the development of a consolidated two-way science program at Matuwa Kurrara Kurrara (MKK) Indigenous Protected Area (IPA). The Project will include training, planning and on-ground works inside and outside the existing predator-free compound.	03/04/2017 - 30/12/2018	\$250,000

Sub-program	State	Organisation	Name	Description	Project date	Funding
			and keeping country healthy			
Local Programmes	WA	GILBERT'S POTOROO ACTION GROUP INC	Gilbert's potoroo - Establishing a new insurance population of the world's rarest marsupial	This project aims to establish another insurance population on Middle Island in the Recherche Archipelago. Intensive evaluation of the island's potential to support potoroos will be carried out, examining habitat suitability and resource availability (shelter and fungal food) through seasonal surveys and trial translocations using Bald Island animals. If the results of these investigations indicate that the island will support potoroos, a release of animals from multiple sources will follow.	03/04/2017 - 29/09/2018	\$250,000
Local Programmes	SA	F.A.M.E	Improving landscape function in arid Australia by restoring the western quoll.	This is a component of the larger quoll reintroduction project and will provide targeted cat control during the second translocation of animals to the site. This project is a partnership between FAME, the office Western Quoll Recovery Team, Department of Environment, Water and Natural Resources – SA Arid Lands region and Operation Bounceback. The translocation of the Western Quoll to areas where they once occurred is an agreed action in the recovery plan for the species.	11/02/2015 - 29/06/2016	\$50,000
Local Programmes	NT	DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES	MacDonnell Ranges - Feral cat control to protect the Central Rock-rat	This project will continue successful cat baiting in the MacDonnell Ranges undertaken over the previous two years to reduce feral cat densities in high priority areas and secure populations of the central rock-rat in the wild.	30/06/2018 - 30/06/2019	\$50,000
Local Programmes	SA	Kangaroo Island Land for Wildlife (KI LFW) Association Incorporated	Protecting the Kangaroo Island Dunnart with community action	The purpose of the Grant is to enable Kangaroo Island Land for Wildlife landholders with key Kangaroo Island dunnart habitat to actively reduce the impacts of feral cats and better manage their properties to improve habitat for the Kangaroo Island dunnart for the long term. The project will also support landholders, community members, volunteers and school students to increase their awareness and understanding of, and skills in, threatened species conservation through development of property management strategies to control threats including fire, invasive plants, livestock grazing and <i>Phytophthora cinnamoni</i> .	13/05/2018 - 30/01/2019	\$65,000
Local Programmes	WA		Feral cat control on the Ningaloo Coast	The project will triple the area of land managed for the protection of EPBC listed threatened fauna against predation threats in the greater Ningaloo Coast World Heritage area. The project will reduce feral cat and fox numbers on the North West Cape peninsula to protect black-flanked rock wallaby, marine turtles and migratory shorebirds, and provide for future reintroduction of other EPBC	31/12/2017 - 30/06/2019	\$249,500

Sub-program	State	Organisation	Name	Description	Project date	Funding
				listed threatened species, including central rock-rat, golden bandicoot, western quoll, and bilby by 2021. Rabbit control will also be undertaken to reduce prey availability for feral cats. Feral goat control will benefit rock wallabies by reducing grazing and trampling impacts to their habitat and food resources.		
Local Programmes	TAS	TROWUNNA WILDLIFE PARK	Tasmanian Bettong and Eastern Barred Bandicoot Conservation Breeding Program	The purpose of the Grant is to provide direct support to two target threatened mammal species (the Eastern Bettong, Bettongia gaimardi, and Eastern Barred Bandicoot, Perameles gunnii gunnii) under an ex-situ conservation program developed and managed onsite at Trowunna Wildlife Sanctuary, Tasmania. Support towards both of these species will be in the in the form of direct conservation breeding outcomes, as well as significant education, conservation messaging and public awareness outcomes with the ongoing potential for the implementation of release to the wild programs to reinforce and augment existing wild populations.	01/09/2017 - 31/12/2018	\$46,145
Local Programmes	SA	Kangaroo Island Natural Resources Management Board	Felixers versus Felis: Innovative engagement of Kangaroo Island landholders in feral cat control activities	The project will engage landholders and Friends of Parks groups on Kangaroo Island in feral cat control activities by training them to deploy and operate toxic Felixer™ grooming traps on private and public land. These groups will also be trained to verify Felixer mortalities through radio-tracking and to analyse images from grooming trap and motion-activated cameras to record target and non-target encounters. This will provide a vital opportunity to comprehensively field test and improve grooming trap effectiveness in a broad range of landscapes, establish a community of practice comprised of skilled operators, and collect data on cat abundance and distribution, in preparation for the onset of landscape-scale eradication of feral cats on the Island in 2019. Community control and monitoring activities will be coordinated and supported by a liaison officer who will also be responsible for handling toxic cartridges.	04/01/2018 - 30/06/2019	\$236,500
Local Programmes	WA	WWF AUSTRALIA	Kimberley Ranger CWR mammal project	The Kimberley is an internationally recognised hotspot for critical weight range (CWR) mammals. Significant capacity (Indigenous Rangers) exists to address key threats. This project will protect populations of Brush-tailed Rabbit-Rat and Golden Bandicoot in the Dambimangari and Unguu Indigenous Protected Areas, including mainland hotspots (Mitchell Plateau and Yampi Peninsula) and offshore islands (Augustus, Storr and Uwins Island, and other islands with similar habitats). Targeted management of these threatened species will be undertaken by Indigenous	01/09/2017 - 30/06/2019	\$205,120

Sub-program	State	Organisation	Name	Description	Project date	Funding
				Rangers and Traditional Owners with support by WWF and BHA ecologists. Actions include: reducing the threat of wildfire and enhancing habitat with fire; identifying and controlling feral cats around key populations ; managing impacts of feral cattle; maintaining island biosecurity and identifying new populations of CWR mammals.		
Local Programmes	WA	KIMBERLEY LAND COUNCIL ABORIGINAL CORPORATION	Tjurabalan Native Title Lands including Paruku IPA – Identifying and protecting threatened species	The project is explicitly aimed at involving Traditional Owners in knowledge sharing and land management for the benefit of the threatened species found on Tjurabalan Lands, including the Paruku IPA. The project aims to help Indigenous Rangers identify and protect specific areas of critical habitat / high conservation value for the Bilby, Night Parrot and other CWR mammals. On ground activities will include native and feral animal survey, management of key threatening processes such as reducing the number of feral cats and foxes, mosaic burning to improve fire regimes and buffer burning to protect key habitat. The project will also aim to share knowledge and bring stakeholders together to collaborate on best management approaches for threatened species and to ensure environmentally and economically sustainable outcomes.	02/10/2018 - 29/06/2020	\$80,000
Regional Funding	NT	Territory NRM	Protecting our Natural Environment	This project will engage and support land managers to plan and implement management actions to maintain the biodiversity values of Sites of Conservation Significance and to reduce the impact of threatening processes on native species. On ground activities include strategic control of invasive weeds impacting on Wetlands of National Significance and management of feral cats and foxes in accordance with threat abatement plans to maintain and recover threatened native species.	01/01/2015 - 30/06/2018	n/a
Regional Land Partnerships	SA	RLP Kangaroo Island Natural Resources Management Board	Planning for the future of the Kangaroo Island Dunnart	This project will work with key stakeholders undertake conservation planning that will help improve the trajectory of the EPBC-listed KI dunnart (<i>Sminthopsis aitkeni</i>). Conservation planning actions will include: 1) Holding a one-day workshop to review current strategies and relevant information to develop long-term strategies and actions for the conservation of the KI dunnart. 2) Creating a draft conservation advice to provide guidance on long-term management actions to assist with the recovery of the KI dunnart. 3) Establishing and implementing an agreement with KI Land for Wildlife Inc. to carry out a feasibility study on the establishment of a feral	2018-19	n/a

Sub-program	State	Organisation	Name	Description	Project date	Funding
				cat-free safe haven for the KI dunnart on western Kangaroo Island and conduct ongoing conservation actions, in conjunction with the local community, that will help improve the trajectory of the KI dunnart.		
Projects underway						
Regional Land Partnerships	ACT	RLP Environment Planning and Sustainable Development Directorate	Safe haven for Quolls and Bettongs in the ACT	<p>This project will enable the reintroduction of threatened Eastern Quolls and Eastern Bettongs into the expanded Mulligans Flat Sanctuary. A network of wildlife cameras, reviewed by community volunteers, will monitor the presence of pest animals and Eastern Quoll prey availability. On-ground fauna surveys will augment the camera network data, contributing to species abundance data and intervention success.</p> <p>Implemented pest control programs will lead to the eradication of pest animals from the new Sanctuary and where warranted, target foxes and cats surrounding the new Sanctuary. An indigenous ranger will foster indigenous culture, including Eastern Quoll, Eastern Bettong and Box-Gum Woodland knowledge and awareness.</p> <p>Reintroductions will lead to enhanced ecological function of the Box-Gum Woodland Threatened Ecological Community within the new Sanctuary. This project will add to the body of successful ecosystem restoration achieved at the Mulligans Flat Sanctuary over the last decade.</p>	09/10/2018 - 29/06/2023	\$808,470
Regional Land Partnerships	NT	RLP Territory Natural Resource Management Incorporated	Protecting the Central rock-rat and Arid Zone Threatened Species Recovery Forum	<p>The project will implement strategic management actions for the Central Rock Rat (<i>Zyomys pedunculatus</i>) including predator (cat) control at trial sites in the MacDonnell Ranges and investigate small scale burning. Results of successive baiting trials and knowledge of feral cat management in other jurisdictions will be used to develop a tailored approach to regional cat management.</p> <p>Priority management actions will be trialled on a small scale to protect habitat for Rock Rat recovery, and occupancy will be monitored at two reference sites. Forums will be convened enlisting key stakeholders to collaborate and share information on conservation and protection of the Central Rock Rat and other priority threatened species in central Australia. A conservation planning process will contribute to implementation of coordinated and strategic management activities (particularly fire) for threatened species in central Australia, with project learnings informing multi stakeholder planning sessions.</p>	07/11/2018 - 29/06/2023	\$392,500

Sub-program	State	Organisation	Name	Description	Project date	Funding
Regional Land Partnerships	NT	RLP Territory Natural Resource Management Incorporated	West Island Feral Cat Eradication - Dealing with the last feral cats	After 9 years of cat control on West Island, the li-Anthawirriyarra Sea Rangers are close to completing the eradication of cats from the island, and two of the four mammal species that occurred before the arrival of cats have shown a remarkable recovery. A concerted effort will now be required to remove the last couple of cats from the island, but if sustained control does not occur, it is possible that the remaining cats will breed up and undo 9 years of hard work. By 30 June 2020 we plan to deploy 30 cameras around the island to try to get a better idea of the number of individual cats that remain, conduct broad scale baiting throughout the 13,000 ha island by distributing Eradicat baits from a helicopter, and conduct strategic leghold trapping and Grooming Trap deployment in the last known area harbouring cat signs. We also plan to monitor small mammals at four sites to confirm the cat control is continuing to reduce predation impacts on mammal communities.	22/10/2019 - 29/06/2021	\$75,000
Regional Land Partnerships	NSW	RLP Local Land Services	Bringing the Plains-wanderer back from the brink	The purpose of this project is to recover the population of plains-wanderer in the Murray & Riverina. Plains-wanderers are small, ground-dwelling birds found in sparse native grasslands of the Murray & Riverina. Plains-wanderers require specific habitat conditions. An open grassland structure allows birds to easily move about, find seeds & insects to eat, & to detect & slip away from predators like foxes. Plains-wanderers will disappear from habitat that becomes too sparse or too dense. This project will improve the condition of grassland habitat for plains-wanderers by supporting landholders to improve grazing management practices. This project will also undertake landscape-scale fox and cat control & build support for plains-wanderer conservation within the community. By improving grazing management of grasslands & controlling predators like foxes, this project will safe-guard suitable grassland habitat areas to recover plains-wanderers in the Murray & Riverina.	01/07/2018 - 29/06/2023	\$1,493,250
Regional Land Partnerships	NSW	RLP Local Land Services	Boosting the Bunyip Bird Yield	The primary objective of the project is to stabilise or improve the Australasian Bittern population and increase habitat across the Coleambally and Murrumbidgee Irrigation Areas and nearby wetlands in the Mid Murrumbidgee wetlands with a focus west of Narrandera. This will be achieved by; Monitoring Bittern occupancy rates and breeding success in rice and natural wetlands using drone thermal imaging, bird counts, and monitoring cameras; Implementing an integrated fox and cat control and monitoring program; working with Ricegrowers to ensure habitat areas are	01/07/2019 - 30/06/2023	\$1,605,000

Sub-program	State	Organisation	Name	Description	Project date	Funding
				maintained for Bittern breeding through a landholder incentive program; working with OEH and CEWO to increase the amount of suitable natural wetland habitat for the Bittern through infrastructure upgrades and managing watering regimes; raising awareness, knowledge and conservation through training Ricegrowers in Bittern friendly rice growing practices, creating promotional materials and a video and attendance at events.		
Regional Land Partnerships	NSW	RLP Local Land Services	Bringing the Plains-wanderer back from the brink	The primary objective of this project is to stabilize or improve the population of Plains-wanderer in the Riverina and to maintain or improve the area of primary habitat. This project will continue to support landholders through an incentive program to manage Plains-wanderer primary habitat with advice, financial support and training to increase landholder adoption of changed grazing practices, to increase groundcover, and undertake improved weed and pest management to improve habitat condition. Feral animal reduction will occur through the maintenance of a large-scale intensive program that will cover fox baiting and cat trapping over the 5 years. This project will continue to raise awareness and knowledge for Plains-wanderer conservation within the broader community through training and field days, promotional materials and attendance at events. Indigenous engagement will occur through cultural heritage surveys on private land where works are proposed through this project.	01/07/2018 - 29/06/2023	\$2,090,350
Regional Land Partnerships	NSW	RLP Local Land Services	Defending Blue Lake Ramsar Site (from Mouse Ear Hawkweed and other threats)	This project will deliver an integrative approach using new drone technologies, detector dogs and community volunteers to undertake surveillance to identify, control and eradicate Mouse Ear Hawkweed (Hieracium pilosella) from sites within and surrounding the Blue Lake Ramsar site in Kosciuszko National Park. Information on the distribution of pest animals in the area, including foxes and cats, will also be collected for management of these threats by National Parks & Wildlife Service. The weed, first identified within Kosciuszko National Park in 2014, forms dense mats and displaces all other plants, creating mono-cultures which decreases biodiversity and impacts threatened species habitat. It therefore poses a significant threat to the unique alpine vegetation communities of the Blue Lake ramsar site and surrounding areas. Recent efforts to control the weed by NPWS have significantly reduced its distribution, but there is an urgent need to continue efforts to eradicate it by 2025.	05/03/2019 - 29/06/2023	\$505,000

Sub-program	State	Organisation	Name	Description	Project date	Funding
Regional Land Partnerships	SA	RLP Alinytjara Wilurara Natural Resources Management Board	Nganamara (malleefowl) adaptive management in the Great Victorian Desert, South Australia	This project will confirm and increase baseline knowledge of malleefowl and secondary investment priority species populations in the AW region. Baseline populations of breeding malleefowl will be confirmed by identifying mounds with LiDAR and ground-truthing areas. Activities will contribute to National Malleefowl Recovery Team goals and the Australian Malleefowl monitoring program. Monitoring of sandhill dunnart, Ooldea Guinea-flower and Mount Finke grevillea, near malleefowl locations, will obtain baseline knowledge of these populations. Camel removal and vegetation monitoring, as an indicator of camel pressure, will also be completed. Feral predator removal (foxes and cats) will be undertaken. Sand-plot and motion sensor cameras will be used to determine predator pressure. Fire and buffel grass management will be undertaken to reduce threats to malleefowl and sandhill dunnart habitat. All activities will include engagement with Aboriginal land managers to build community capacity.	04/11/2018 - 29/06/2023	\$2,666,467
Regional Land Partnerships	SA	RLP Kangaroo Island Natural Resources Management Board	Creating a safe haven for the Kangaroo Island Dunnart and other priority threatened species by eradicating feral cats from the Dudley Peninsula	This project will create a permanent safe haven for the endangered Kangaroo Island dunnart, and other EPBC-listed species such as the KI echidna and hooded plover, by eradicating feral cats from the Dudley Peninsula (DP) on eastern KI. The DP will be isolated from the remainder of KI by a barrier fence to prevent reinvasions. Feral cats will be eradicated by trapping, baiting and hunting, with verification by detector dogs. Threatened species will be monitored to measure eradication outcomes. There are no recent records of KI dunnarts from eastern KI despite large tracts of suitable habitat. However, dunnarts are difficult to find and search effort has been limited so there may be an undetected population. Cat eradication will enable an extant dunnart population to increase, or, if absent from the DP, create a safe haven for a re-introduced population in the future.	31/03/2019 - 30/06/2023	\$2,014,900
Regional Land Partnerships	SA	RLP South Australian Arid Lands Natural Resources Management Board	Bounceback and Beyond - landscape scale protection for threatened semi-arid species and their habitat	This project will use cost effective methods to address key threats to the Yellow-Footed Rock-wallaby, TSS priorities Malleefowl and Western Quoll, and other EPBC-listed species and habitat. Activities will reduce threats of predation by foxes and cats , and habitat damage/resource competition from goats. The project will coordinate landscape-scale goat and fox control across 460,000 ha, complementing existing management programs. New activities include: establishing new insurance populations of the recently reintroduced Western Quoll and the highly restricted, endemic Flinders Ranges Purple-spotted Gudgeon through support for ex-situ	01/07/2018 - 30/06/2023	\$3,855,734

Sub-program	State	Organisation	Name	Description	Project date	Funding
				breeding programs and translocations to suitable sites; a focus on evaluating the effectiveness of fox control for Malleefowl population response in non-fragmented semi-arid mallee country; and evaluating effectiveness of goat management on condition and extent of threatened plants including the EPBC listed Slender Bell-fruit and Xerothamnella parvifolia.		
Regional Land Partnerships	VIC	RLP Goulburn Broken Catchment Management Authority	Mending mountains for the Pygmy-possum: enhancing habitat for the endangered Mountain Pygmy-possum (Burramys parvus)	The Mending Mountains for the Pygmy Possum project will work with Mount Buller Resort Management, Taungurung Land and Waters Council (TLWC) and ecologists to tackle threats from predation by cats, weed invasion, decline in resource availability, habitat fragmentation and loss of genetic diversity to the small population of endangered Mountain Pygmy-possums at Mount Buller. This project will address key aspirations of Taungurung people to take a leading role in threatened species management, by engaging TLWC where possible throughout the project, in cat control , targeted revegetation, weed mapping, weed control and monitoring. Data collected during project delivery will be used to adapt and inform future management decisions. Actions delivered under this project have been designed to align with key actions within the Mountain Pygmy-possum National Recovery Plan (2016), that result in the stabilisation or improvement in the trajectory of this EPBC endangered species.	01/07/2018 - 29/06/2023	\$1,347,668
Regional Land Partnerships	VIC	RLP North Central Catchment Management Authority	Bringing Back the Bittern	The Bringing Back the Bittern project will contribute to the recovery of the Australasian bittern and growling grass frog, by increasing the extent of suitable wetland habitats. Project staff will work with DELWP, Trust for Nature, Parks Victoria, community and other stakeholders to target on-ground actions such as earthworks to provide variability of wetland types, provision of infrastructure to connect to water supply, revegetation and fox and cat control at sites with known Bittern populations to increase the success at key breeding times and improve fledgling survival rates. The project will identify suitable sites to be prioritised for works based on the simplicity to resolve hydrological threats to the wetlands and the willingness of the landholder to protect the wetland through works agreements (or covenants funded and completed by TfN). The project seeks to increase high quality bittern habitat, which has the potential to support the recruitment of birds each breeding season.	01/07/2018 - 29/06/2023	\$2,049,175
Regional Land Partnerships	VIC	RLP North East Catchment	Mountain Pygmy Possum Recovery	Over 5 years the North East Catchment Management Authority will coordinate the Mountain Pygmy Possum Recovery in the Victorian Alps Project, delivering actions from the National Recovery Plan for	01/07/2018 - 29/06/2023	\$1,634,659

Sub-program	State	Organisation	Name	Description	Project date	Funding
		Management Authority	in the Victorian Alps	the Mountain Pygmy Possum - <i>Burramys parvus</i> (Australian Government Department of the Environment, 2016). To ensure collaborative delivery the North East Catchment Management Authority will partner with Parks Victoria, Mount Hotham Alpine Resort Management Board (MHARB) and Falls Creek Alpine Resort Management Boards, Traditional Owners and other technical specialist to deliver threat abatement activities. Services to be delivered will include a large scale cat and fox control program , sedimentation reduction into boulderfields, habitat revegetation and removing weeds within key habitat areas of the Mountain Pygmy Possum.		
Regional Land Partnerships	VIC	RLP Port Phillip and Westernport Catchment Management Authority	Two Great Ramsar Wetlands	Two Great Ramsar Wetlands project will undertake strategic actions to protect the ecological character of the Western Port and Port Phillip Bay (Western Shoreline) and Bellarine Ramsar sites. This will be achieved by reducing key threats to these wetlands through the management of invasive pest plants and animals, improving hydrological regimes, controlling access to sensitive wetland habitats, and increasing community awareness and understanding of Ramsar site values. Feral goats and feral cats will be eradicated from French Island and feral pigs will be eradicated from Quail Island. Intensive year-round feral cat trapping will be undertaken at Observation Point/Rhyll Inlet on Phillip Island. The cumulative impact of these services will result in measurable progress and achievement of Regional Land Partnership outcomes, contributing to improving the condition of Ramsar wetlands and the nationally threatened coastal saltmarsh vegetation communities of the region.	01/07/2018 - 30/06/2023	\$3,050,689
Regional Land Partnerships	VIC	RLP Port Phillip and Westernport Catchment Management Authority	French Island Feral Cat Control – Controlling cats to save threatened species in the Western Port Ramsar wetland	This project will contribute to the eradication of feral cats from French Island (Victoria), creating a safe haven for Eastern Barred Bandicoot, Long-nosed Potoroo, and Ramsar associated waterbirds. PPWCMA will work with Parks Victoria, French Island Landcare, Zoos Victoria and other key stakeholders to coordinate aerial baiting of feral cats within French Island National Park, whilst undertaking extensive environmental monitoring of feral cats and island wide monitoring of threatened species susceptible to cat predation. Complimentary activities for 'mop-up' (e.g. soft-jaw leg-hold trapping, spotlight shooting, and the use of detector dogs for validation) will be incorporated into the project at the operational level towards the latter stages of the project. This project will support the release of Eastern Barred Bandicoot onto French Island.	01/07/2019 - 30/06/2023	\$505,000

Sub-program	State	Organisation	Name	Description	Project date	Funding
Regional Land Partnerships	VOC	RLP Wimmera Catchment Management Authority	Protecting our Malleefowl	<p>The nationally vulnerable Malleefowl is a unique and iconic bird that personifies Mallee landscapes. This integrated tenure blind project aims to help improve the trajectory of the Malleefowl population in the Wimmera by supporting land managers to address the key threats of predation, habitat loss, fragmentation and habitat degradation.</p> <p>The project will improve the extent, condition and security of high value Malleefowl habitat on private property by working with landholders to undertake targeted revegetation, pest plant and animal control, improve grazing management and create in perpetuity conservation covenants.</p> <p>Collaborating with the Victorian and National Malleefowl Recovery teams, we will control and monitor foxes and cat across three National Malleefowl Adaptive Management Project site contributing vital information to this national project and help improve our understanding of the impact foxes and cats have on Malleefowl populations.</p>	30/06/2019 - 29/06/2023	\$1,405,000
Regional Land Partnerships	WA	RLP Peel-Harvey Catchment Council Inc	Numbat Neighbourhood – supporting people to protect the vulnerable Noombat wioo (Numbat, Myrmecobius fasciatus) in the Wild	<p>The Noombat wioo (Numbat: Myrmecobius fasciatus) is a small unique marsupial found only in Australia & is of cultural significance to the Noongar people. The Numbat has been in decline from threats such as predation by feral cats & foxes, habitat fragmentation & disturbance, disease, climate change & inappropriate fire regimes. This 5 year project will help address the decline & improve the trajectory of Numbats as well as that of secondary species, Woylie, Chuditch, Matchstick Banksia, Red-tailed Phascogale & Malleefowl. The project will work with other Management Units, Local & State Government organisations, the Noongar people & broader communities, including Perth Zoo Numbat breeding program. The focus locations for this Management Unit are private landholders &/or in landholdings, close to Dryandra Woodland & Tutanning Nature Reserves, that are large enough to provide suitable habitat & food resources & support breeding populations for the Numbat, & secondary species.</p>	23/09/2018 - 29/06/2023	\$2,184,005
Regional Land Partnerships	WA	RLP South Coast Natural Resource Management Inc	Protecting coastal corridors and improving Proteaceae dominated	<p>The project will improve management of 787 ha of high value Temperate Coastal Saltmarsh and Proteaceae Dominated Kwongan Shrubland TEC's by better managing weeds, integrated pest animal control (rabbits, foxes and cats), reducing the spread of Phytophthora, revegetation and better managing access to private</p>	20/09/2018 - 29/06/2023	\$2,648,213

Sub-program	State	Organisation	Name	Description	Project date	Funding
			Kwongkan Shrubland and Temperate Coastal Saltmarsh TEC for South Coast Region of WA	lands and reserves containing TECs. The project will prioritise the mitigation of key threatening processes to increase protection and improve management of the TEC's consistent with RLP program targets. Project activities will be implemented through partnerships with 6 community groups, 1 Aboriginal Native Title Group and Department of Biodiversity, Conservation and Attractions.		
Regional Land Partnerships	WA	RLP South West Catchments Council	Creating safe havens for the Western Ringtail Possum and priority nationally listed threatened species in the South West	This project will work with a wide range of stakeholders to improve conservation outcomes and enhance the viability of populations of the critically endangered western ringtail possum (<i>Pseudocheirus occidentalis</i>) in the south west region's urban landscape and in forested areas, including Wellington National Park, Jarrah Forest region and Margaret River region where the species is in decline with small and severely fragmented subpopulations. Climate change impacts including reduced rainfall and higher temperatures and continuing urban development create a pressing need to create new habitats and enhance existing habitat where predator threat abatement is also occurring. Concurrently it will deliver conservation outcomes for the numbat (<i>Mymecobius fasciatus</i>), Chuditch (<i>Dasyurus geoffroii</i>), Woylie (<i>Bettongia penicillata ogilbyi</i>) and Malleefowl (<i>Leipoa ocellata</i>) in the South West region through the delivery of feral predator reduction strategies, including innovative cat control trials .	05/09/2018 - 29/06/2023	\$5,466,645
Regional Land Partnerships	TAS	RLP Cradle Coast Authority	Creating a Hooded Plover Stronghold on Three Hummock Island	This project will create a stronghold for the Hooded Plover, <i>Thinornis rubricollis rubricollis</i> , on Three Hummock Island off the north-west coast of Tasmania, through the eradication of the Island's feral cat population , and the removal of invasive weeds and marine debris from key nesting areas. To be delivered in partnership with Biosecurity Tasmania, Tasmania Parks and Wildlife Service, the Tasmanian Aboriginal community, Three Hummock Island managers, and Birdlife Australia, the project aims to create an island 'safe haven' for the Hooded Plover, a priority species under the Threatened Species Strategy.	08/10/2019 - 29/06/2023	n/a
Regional Land Partnerships	NT	RLP Territory Natural Resource Management Incorporated	Protecting the habitat of the Greater Bilby through the Arid Lands of Central Australia	This project will facilitate and implement strategic actions to manage threats (especially fire and feral predators) to Bilby habitat and populations in NT Arid Zone. Knowledge of Bilby distribution, abundance, and population response to threats will be improved through monitoring of Bilby's, habitats and predators at 2 sites. Indigenous land managers will be supported to visit and survey areas not previously visited to	2019-2023	n/a

Sub-program	State	Organisation	Name	Description	Project date	Funding
				determine whether Bilby are present and expand current knowledge.		
Regional Land Partnerships	SA	RLP Northern and Yorke Natural Resources Management Board	Great Southern Ark: building a landscape-scale safe haven for Australia's most threatened species on southern Yorke Peninsula	The Great Southern Ark project will produce tangible, long-term biodiversity outcomes across southern Yorke Peninsula, and make a significant contribution to the district's social and economic sustainability. This will be achieved by (i) reducing the threat to extant priority threatened fauna species through a strategic feral predator management program, (ii) the creation of a 140,000 hectare fenced safe haven for Australian threatened species, (iii) commencing the reinstatement of ecological processes, through the reintroduction of the Woylie, and (iv) continuing the current program of habitat restoration, through the control of Weeds of National Significance.	2018-23	n/a
Regional Land Partnerships	WA	RLP Rangelands NRM Coordinating Group (Inc.)	Reducing risk to Bilby habitat across the northern rangelands	The project will facilitate the engagement of Traditional Owners, Indigenous Rangers and pastoralists into complementary initiatives coordinated by Rangelands NRM to address known threats (unmanaged fire, predation and weeds) to active Greater Bilby habitat and protect EPBC listed Monsoon Vine Thickets (ecological communities). Rangelands NRM will engage and encourage continued collaboration between individual groups and/or collectives of Traditional Owners and their ranger programs (including Kimberley Land Council, Kanyirninpa Jukurrpa and Desert Support Services) as well as innovative pastoral producers, Department Biodiversity Conservation and Attractions (DBCA), Environs Kimberley, and Pilbara Mesquite Management Committee (PMMC). On-ground works will be focused around National Recovery Plan listed threats in priority areas with recently identified active populations to protect and improve bilby population trajectory in the WA rangelands over the next five years.	2018-23	n/a
Regional Land Partnerships	TAS	RLP Northern Tasmanian Natural Resource	Safeguarding northern Tasmania as a refuge for	This project will create three population strongholds covering 12,000 ha for the threatened Eastern Barred Bandicoot (EBB) in northern Tasmania. The low intensity grazing systems in northern Tasmania retain many of the characteristics of their	2018-23	n/a

Sub-program	State	Organisation	Name	Description	Project date	Funding
		Management Association Inc.	Eastern Barred Bandicoot and other threatened species and communities	preferred habitat - grassy woodlands. The abundance of EBB populations will be increased by reducing predatory pressure from feral cats which are a key predator of EBB in Tasmania, as well as a source of toxoplasmosis, and by improving the habitat value of remnant vegetation. Habitat improvement will focus on improving contiguous habitat links across the landscape providing critical cover for EBB to access food and refuge, as well as increasing breeding opportunities.		
Direct source procurement	VIC	RLP Corangamite CMA	Wild Otways Initiative - Fox and feral cat control in planned-burn landscapes to protect threatened species in the Otway Ranges	Research findings suggest that reducing both feral cat and fox densities in burned landscapes following a fire event may support native animal survival in those areas. This project will help determine the management and operational requirements for integrated feral cat and fox control in the Otways after a fire event.	01/07/2020 - 30/06/2023	n/a
Direct source procurement	TAS	RLP South NRM Region Service Provider	Priority actions for eastern quolls on north Bruny Island	Tasmania's Bruny Island is a critical stronghold for the eastern quoll <i>Dasyurus viverrinus</i>; a species extinct on mainland Australia since the 1960s, and one of 20 priority mammal species under the Threatened Species Strategy. Eastern quolls in Tasmania have been declining since 2001 due to threats including climate change (specifically reduced primary prey, corbie larvae), a decline in habitat quality, direct habitat loss, and cats predating on juvenile quolls. At present, north Bruny Island supports a stable, high density population that is key to the long-term viability of the species. This project will help protect eastern quoll from feral cat predation, competition and exclusion impacts on north Bruny Island by: 1. Removing all feral and stray cats from north Bruny Island; 2. Identifying and removing all stray cats from the Alonnah and Simpsons Bay area at the northern end of south Bruny Island; and 3. Ensuring all Island residents and visitors comply with the Bruny Island Cat By-Law.	01/07/2019 - 30/06/2023	n/a
State Government Emergency	SA	Department for Environment and Water	Kangaroo Island Rapid Species Assessment and Immediate Risk Mitigation	Rapid assessment surveys of the remaining unburnt vegetation in western Kangaroo Island are critical for the planning of future management and recovery actions for fauna following the bushfires. Surveys will combine a range of approaches including habitat assessments (invertebrates), direct observations (birds, reptiles,	14/02/2020 - 29/06/2021	n/a

Sub-program	State	Organisation	Name	Description	Project date	Funding
				mammal diggings), audio-recorders (birds, bats, frogs) and fence line cameras (mammals, birds). Data from on-ground surveys and camera traps will be collected and analysed to prioritise recovery actions for fauna within these remnants and to guide the management of threats, primarily predation from feral cats.		

Attachment D: Agricultural Competitiveness White Paper funding

Table A: Projects targeting pest animals including feral cats funded under the *Agricultural Competitiveness White Paper Initiative*.

Project name	Grantee (lead)	Amount	Project summary	Outcomes
Optimising Felixer: an automated grooming trap for the targeted control of foxes and cats (Felixer)	Ecological Horizons Pty Ltd., Cooyerdoo SA	\$473,448	Felixer grooming traps are automated control tools which use rangefinder sensors to distinguish target cats and foxes from non-target wildlife and humans etc, and spray targets with a measured dose of toxic gel. This project improved performance and increased access to Felixer grooming traps.	The development of a more accurate and precise cartridge prototype that reduces splatter, improves delivery and allows for a reduction in 1080 dose, and the establishment of a data management system to store and analyse data captured by the Felixer. The project also demonstrated proof of concept for wireless identification tag blockers to prevent firing of the Felixer on collared cats and dogs. An Australian Pesticides and Veterinary Medicines Authority application has been submitted for broadscale registration of the Felixer grooming trap.
e-Technology Hub: Utilising technology to improve pest management effectiveness and enhance welfare outcomes	Centre for Invasive Species Solutions (previously known as Pest Animal CRC), Canberra ACT	\$1,185,061	This project developed automated proto-type trap devices that use next generation automation technologies such as advanced computer vision and machine learning algorithms coupled with artificial intelligence to identify target and act in response to pest animals, including feral cats.	One of the four proto-type devices developed was designed specifically for feral cats - an Audio Visual-Tactile Lure. Unfortunately, the lure was only mildly effective in attracting feral cats by appealing to their intrigue for movement and sound.
Training in best practice pest management	Department of Agriculture and Fisheries, Brisbane Qld	\$1,309,000	A partnership agreement with the Queensland government to build landholder skills and knowledge in the use of chemicals, toxins, baits and bait deployment devices for pest animal management.	This project saw 489 participants complete the workshops.
Improving landholders predator management skills	Primary Industries and Regions Adelaide SA	\$335,200	A partnership agreement with the South Australian government to improve the skills and knowledge of landholders and pest animal controllers to manage wild dogs, foxes and feral cats using best practice methods.	In addition to work completed for wild dogs and foxes, this project saw demonstration sites established to educate landholders on integrated feral cat management techniques and fox control and was attended by over 40 landholders.
TOTAL		\$3,302,709		

Table B: RD&E projects relating to the management of feral cats led by the Centre for Invasive Species Solutions

Project name	Partners	Project summary
Monitoring, evaluation, reporting & improvement plan for national registration of Eradicat® or a similar product (P01-T-004)	Primary industries and regions SA, SA Dept for Environment and Water, WA Dept of Biodiversity,	Eradicat® baits are kangaroo and chicken sausages injected with sodium fluoroacetate (known as 1080). 1080 is a synthetic toxin, which replicates a naturally occurring poison found in over 30 Australian native plants, with many native animals demonstrating a tolerance to this toxin.

Project name	Partners	Project summary
	Conservation and Attractions	
Facilitating community adoption of digital resources - Feral Scan (P01-E-002):	NSW Department of Primary Industry, Australian Wool Innovation	Feral-scan is a citizen-surveillance program which allows users with the mobile application to report sightings and damage caused by feral animals, including feral cats.
Preparing for reset landscape-scale predator management [Prep4Reset] (P01-L-004)	NSW Department of Primary Industry, Australian Wool Innovation Meat and Livestock Australia	A project seeking to develop best-practice management strategies for applying landscape-level predator control. The objectives of this project are to maintain wild dogs, foxes and feral cats at low abundances and increase livestock production and biodiversity benefits.

Attachment E: Cat management tools in each State and Territory

STATE	Declared as pest within state legislation	Relevant legislation relating to cat management	Cat management tools available within jurisdiction
ACT	<p>Not declared a listed pest under the <i>Pest Plants and Animals Act 2005</i></p> <p>Identifies cats as a damage-causing species under the <i>ACT Pest Animal Management Strategy 2012-2022</i></p>	<p><i>Domestic Animals Act 2000</i></p> <p><i>Bush Capital Legacy – Iconic City, Iconic Natural Assets (ACT NRM Council 2009)</i></p> <p><i>Pest Plants and Animals Act 2005</i></p> <p><i>ACT Pest Animal Management Strategy 2012-2022</i></p> <p><i>Animal Welfare Act 1992</i></p> <p><i>Domestic Animals Act 2000</i></p>	<p>Shooting:</p> <ul style="list-style-type: none"> - Shooting limited to feral animals on private property with permission. - Feral cats listed as a feral animal that can be taken. - Must comply under the <i>Firearms Act 1996</i>. <p>Baiting:</p> <ul style="list-style-type: none"> - Permitted for use by authorised persons. Currently there are no specific feral cat control programs in the ACT. - No additional Territory legislation required for the use of cat baits if approved by APVMA. <p>Cage trapping:</p> <ul style="list-style-type: none"> - A person may apply for a commercial or private trapping permit under the process outlined in Division 6.2 under the <i>Animal Welfare Act 1992</i>. <p>Leghold traps:</p> <ul style="list-style-type: none"> - Padded-jaw are permitted under the <i>Animal Welfare Act 1992</i>. - A person may apply for a commercial or private trapping permit under the process outlined in Division 6.2 under the <i>Animal Welfare Act 1992</i>. <p>Dogs:</p> <ul style="list-style-type: none"> - Use of hunting dogs prohibited under the <i>Animal Welfare Act 1992</i> and <i>Domestic Animals Act 2000</i>. <p>Felixer grooming trap:</p> <ul style="list-style-type: none"> - No specific legislation allowing the use of Felixers at this stage. Until broadscale registration is received, Felixers can only be operated with a research permit for the area approved by the APVMA.
VIC	<p>Feral Cats declared as a pest on specified crown land under the <i>Catchment and Land Protections Act 1994</i></p> <p>Listed as a Potentially Threatening Process under the <i>Fauna and Flora Guarantee Act 1988</i></p>	<p><i>Catchment and Land Protections Act 1994</i></p> <p><i>Fauna and Flora Guarantee Act 1988</i></p> <p><i>Prevention of Cruelty to Animals Act 1986</i></p> <p><i>Prevention of Cruelty to Animals Regulations 2008</i></p>	<p>Shooting:</p> <ul style="list-style-type: none"> - Shooting permitted but limited to departmental and agency staff (and their agents) on specified crown land. <p>Baiting:</p> <ul style="list-style-type: none"> - The use of 1080 for control of feral cats is prohibited. - Curiosity is restricted to persons operating under a specific permit issued from Agriculture Victoria. Restricted to specified crown land. Controls have been established under the <i>Agricultural and Veterinary Chemicals (Control of Use) Act 1992</i>.

STATE	Declared as pest within state legislation	Relevant legislation relating to cat management	Cat management tools available within jurisdiction
		<p><i>Agricultural and Veterinary Chemical (Control of Use) Act 1992</i></p> <p><i>Domestic Animals Act 1994</i></p>	<p>Cage trapping:</p> <ul style="list-style-type: none"> - Permitted ensuring trap complies with regulation 34 and individual sets trap in accordance with regulation 35 and 36 under the <i>Prevention of Cruelty to Animals Regulations 2008</i>. - Traps can only be set with approval from land holder. <p>Leghold traps:</p> <ul style="list-style-type: none"> - Leg hold traps are permitted by Ministerial exemption for declared feral cats in limited circumstances and only where the feral cat declaration applies, and eradication is achievable. <p>Dogs:</p> <ul style="list-style-type: none"> - Dogs can be utilised to point or flush feral cats under the <i>Prevention of Cruelty to Animals Regulations 2008</i> and <i>Domestic Animals Act 1994</i>. <p>Felixer grooming trap:</p> <ul style="list-style-type: none"> - No specific legislation allowing the use of Felixers at this stage. - The use of 1080 for control of feral cats is prohibited. - Until broadscale registration is received, Felixers can only be operated under trial permits with toxins if approved by the APVMA.
NSW	<p>Feral cats are identified as a Priority Pest Animal in 11 Regional Strategic Pest Animal Management Plans.</p> <p>There is therefore a requirement to manage the impacts of feral cats under the General Biosecurity Duty of the Biosecurity Act 2015</p> <p>Biodiversity Conservation Act 2016 (Schedule 3) lists feral cats as a key threatening process</p>	<p><i>Biosecurity Act 2015</i></p> <p>The NSW Invasive Species Plan 2018-2021 Plan</p> <p>Regional Strategic Pest Animal Management Plans 2018-2023</p> <p><i>Biodiversity Conservation Act 2016</i></p> <p><i>Prevention of Cruelty to Animals Act 1979</i></p> <p><i>Prevention of Cruelty to Animals Regulations 2012</i></p>	<p>Shooting:</p> <ul style="list-style-type: none"> - Must be licensed under the <i>Firearms Act 1996</i> with an appropriate genuine reason and have permission of the relevant land manager. <p>Baiting:</p> <ul style="list-style-type: none"> - 1080 is registered for use by authorised officers. An authorised person may only use or possess 1080 bait products for the control of wild dogs, foxes, feral pigs or rabbits under the <i>Pesticide Control (1080 Bait Products) Order 2020</i>. - Monitoring is being undertaken to determine if feral cats are impacted by baiting for wild dogs and foxes, however feral cats cannot be targeted with 1080 baiting in NSW <p>Cage trapping:</p> <ul style="list-style-type: none"> - Trapping must comply with the <i>Prevention of Cruelty to Animals Act 1979</i>. <p>Leghold traps:</p> <ul style="list-style-type: none"> - Trapping must comply with the <i>Prevention of Cruelty to Animals Act 1979</i>. - Steel jaw traps prohibited under the <i>Prevention of Cruelty to Animals Act 1979</i>

STATE	Declared as pest within state legislation	Relevant legislation relating to cat management	Cat management tools available within jurisdiction
		<p><i>Pesticides Act 1999</i></p> <p><i>Pesticide Control (1080 Bait Products) Order 2020</i></p> <p><i>Pesticide Control (1080 Felixer Cartridge Trial) Order 2020</i></p> <p><i>Firearms Act 1996</i></p> <p>Firearms Regulation 2017</p>	<p>Dogs:</p> <p>Dogs may be used to locate, point, flush or retrieve ensuring compliance under <i>Prevention of Cruelty to Animals Act 1979</i> and <i>Companion Animals Act 1998</i>.</p> <p>Felixer grooming trap:</p> <ul style="list-style-type: none"> - A Pesticide Control Order is in place. - Until broadscale registration is received, Felixers can only be operated with toxins under the APVMA research permit and with approval of the NPWS Director Conservation Branch.
WA	Declared as a pest under the <i>Biosecurity and Agriculture Management Act 2019</i>	<p><i>Biosecurity and Agriculture Management Act 2007</i></p> <p><i>Biodiversity Conservation Act 2016</i></p> <p><i>Animal Welfare Act 2002</i></p> <p>Animal Welfare (General) Regulations 2003</p> <p><i>Medicines and Poisons Act 2014</i></p> <p><i>Dog Act 1976</i></p>	<p>Shooting:</p> <ul style="list-style-type: none"> - Must be licenced and comply under the <i>Firearms Act 1973</i>, <i>Animal Welfare Act 2002</i> and <i>Biodiversity Conservation Act 2016</i>. - Authorised persons may humanely destroy feral cats providing land owner permission is obtained. <p>Baiting:</p> <ul style="list-style-type: none"> - Eradicat bait registered for use in Western Australia. - Eradicat can only be used by Authorised Officers, Licensed Pesticide Management Technicians that comply under the <i>Medicines and Poisons Act 2014</i>. <p>Cage trapping:</p> <ul style="list-style-type: none"> - Cage trapping permitted for cat control (under permit) under the <i>Animal Welfare Act 2002</i>. <p>Leghold traps:</p> <ul style="list-style-type: none"> - Leg hold traps are not permitted for cat control (unless under special exemption), considered inhumane devices under the <i>Animal Welfare Act 2002</i>. <p>Dogs:</p> <ul style="list-style-type: none"> - The use of Dogs permitted ensuring compliance under the <i>Animal Welfare Act 2002</i> and <i>Dog Act 1976</i>. <p>Felixer grooming trap:</p> <ul style="list-style-type: none"> - No specific legislation allowing the use of Felixers at this stage. - Until broadscale registration is received, Felixers can only be operated with toxins if approved by the APVMA and State or Territory 1080 authorities.

STATE	Declared as pest within state legislation	Relevant legislation relating to cat management	Cat management tools available within jurisdiction
TAS	<p>Not declared an invasive species under the <i>Cat Management Act 2009</i>.</p> <p>Not declared as a pest under the <i>Animal Welfare Act 1993</i></p> <p>The Tasmanian Cat Management Plan 2017-2022 recommends amendments to the Cat Management Act 2009 to allow for improved feral cat control</p>	<p><i>Cat Management Act 2009</i></p> <p><i>Animal Welfare Act 1993</i></p> <p><i>Biosecurity Act 2019</i></p> <p>Tasmanian Cat Management Plan 2017-2022</p> <p><i>Dog Control Act 2000</i></p>	<p>Shooting:</p> <ul style="list-style-type: none"> - Authorised Officers may humanely destroy cats found in prohibited areas (National Parks, Conservation Areas, Public Reserves, State Forest and private property with a conservation covenant) under the <i>Cat Management Act 2009</i>. - A person may humanely destroy a cat on their land in accordance with the <i>Cat Management Act 2009</i> and <i>Animal Welfare Act 1993</i>, providing land is over 1km from the nearest residence. - Shooting is not permitted within 250m of a dwelling. <p>Baiting:</p> <ul style="list-style-type: none"> - Only available to Authorised Officers under appropriate permits. <p>Cage trapping:</p> <ul style="list-style-type: none"> - Authorised Officers may trap and humanely destroyed cats found in prohibited areas by under the <i>Cat Management Act 2009</i>. - A person may trap in or on premises lawfully entered, providing land is over 1km from the nearest residence, under the <i>Cat Management Act 2009</i>. <p>Leghold traps:</p> <ul style="list-style-type: none"> - A person must not use a leghold trap under the <i>Animal Welfare Act 1993</i>. A person may apply to the Minister for an exemption to use a leghold trap which the Minister can approve under certain conditions. <p>Dogs:</p> <ul style="list-style-type: none"> - Dogs may be used only during daylight hours to locate, point and flush cats. - Owners must ensure compliance with <i>Animal Welfare Act 1993</i> and <i>Dog Control Act 2000</i>. <p>Felixer grooming trap:</p> <ul style="list-style-type: none"> - No specific legislation allowing the use of Felixers at this stage. - Until broadscale registration is received, Felixers can only be operated with a research permit for the area approved by the APVMA.
QLD	<p>A feral or unowned cat is category 3,4,6 restricted matter under the <i>Biosecurity Act 2014</i></p>	<p><i>Land Protection Act 2002</i></p> <p><i>Biosecurity Act 2014</i></p> <p><i>Animal Care and Protection Act 2001</i></p>	<p>Shooting:</p> <ul style="list-style-type: none"> - Permitted providing shooters have a firearms licence and comply with the <i>Weapons Act 1990</i> - Comply with the <i>Animal Care and Protection Act 2001</i>. - Must obtain landowner permission to enter land to shoot. <p>Baiting:</p> <ul style="list-style-type: none"> - Comply with the <i>Animal Care and Protection Act 2001</i>.

STATE	Declared as pest within state legislation	Relevant legislation relating to cat management	Cat management tools available within jurisdiction
		<p><i>Animal Management (Cats and Dogs) Act 2008</i></p> <p><i>Queensland Medicines and Poisons Regulation 2020</i></p> <p><i>Weapons Act 1990</i></p>	<ul style="list-style-type: none"> - 1080 and PAPP are registered for the control of feral cats, authorised officers can supply and distribute 1080 and Curiosity (PAPP) baits in accordance with the <i>Queensland Medicines and Poisons Regulation 2020</i>. - Officers may use Curiosity (PAPP) ensuring they have obtained a PAPP endorsement (additional to 1080) and comply with Curiosity APVMA label restrictions. - Landholders may apply to Queensland Health for individual approvals for several 1080 products and the toxin PAPP in accordance with the <i>Queensland Medicines and Poisons Regulation 2020</i>. - Eradicator (1080) can only be used in Taunton National Park by authorised officers. <p>Cage trapping:</p> <ul style="list-style-type: none"> - Must obtain landowner permission before entering land to trap. - Cage traps can be used providing they comply with the <i>Animal Care and Protection Act 2001</i>. <p>Leghold traps:</p> <ul style="list-style-type: none"> - Must obtain landowner permission before entering land to trap. - Leg hold traps are permitted ensuring they comply with the <i>Animal Care and Protection Act 2001</i>. <p>Dogs:</p> <ul style="list-style-type: none"> - Dogs may be used only to locate, point and flush cats while ensuring compliance under the <i>Animal Care and Protection Act 2001</i> and <i>Animal Management (Cats and Dogs) Act 2008</i>. - Dogs must not be set on cats in order to savage or injure. <p>Felixer grooming trap:</p> <ul style="list-style-type: none"> - No specific legislation allowing the use of Felixers at this stage. - Until broadscale registration is received, Felixers can only be operated with toxins if approved by the APVMA and State or Territory 1080 authorities.
SA	Declared Animal Pest under the <i>Landscape South Australia Act 2019</i>	<p><i>Landscape South Australia Act 2019</i></p> <p><i>Agricultural and Veterinary Products (Control of Use) Act 2002</i></p> <p><i>Animal Welfare Act 1985</i></p>	<p>Shooting:</p> <ul style="list-style-type: none"> - Feral Cats may be humanely destroyed at any time providing a Hunting Permit is obtained. - Authorised persons may humanely destroy feral cats providing land owner permission is obtained. Approval is required on National Parks and Reserves. - Authorised persons must comply under the <i>Firearms Act 2015</i>, <i>Animal Welfare Act 1985</i> and <i>Animal Welfare Regulations 2012</i>.

STATE	Declared as pest within state legislation	Relevant legislation relating to cat management	Cat management tools available within jurisdiction
		<p><i>Animal Welfare Regulations 2012</i></p> <p><i>Dog and Cat Management Act 1995</i></p>	<p>Baiting:</p> <ul style="list-style-type: none"> - Currently 1080 is the only toxin registered for use in feral cat control and may only be distributed by authorised persons under the <i>Agricultural and Veterinary Products (Control of Use) Act 2002</i>. - A Directions for Use to bait with Curiosity has been published. This allows for restricted use on public and private land by authorised persons. <p>Cage trapping:</p> <ul style="list-style-type: none"> - Permitted for use by authorised persons ensuring compliance under the <i>Animal Welfare Act 1985</i>. <p>Leghold traps:</p> <ul style="list-style-type: none"> - Permitted for use by authorised persons ensuring compliance under the <i>Animal Welfare Act 1985</i>. <p>Dogs:</p> <ul style="list-style-type: none"> - Dogs are permitted to locate, hold at bay and retrieve feral animals but must not be set on animals. Owner must ensure Dog is compliant under the <i>Dog and Cat Management Act 1995</i>. <p>Felixer grooming trap:</p> <ul style="list-style-type: none"> - No specific legislation allowing the use of Felixers at this stage. - Until broadscale registration is received, Felixers can only be operated with toxins if approved by the APVMA and State or Territory 1080 authorities.
NT	<p>Declared Feral Animal under the <i>Territory Parks and Wildlife Conservation Act 2006</i></p>	<p><i>Territory Parks and Wildlife Conservation Act (NT) 2006</i></p> <p><i>Animal Welfare Act 1999</i></p> <p><i>Animal Welfare Regulations 2000</i></p>	<p>Shooting:</p> <ul style="list-style-type: none"> - Feral cats are a declared pest and can be taken at any time. Land owner permission must be obtained. - Shooters must comply under the <i>Firearms Act 1997</i>. <p>Baiting:</p> <ul style="list-style-type: none"> - Unless authorised a person must not lay baits under the <i>Animal Welfare Act 1999</i>. - If you are a property owner or manager, you need to apply for a 1080 Pest Animal Management Authorisation. - Authorised persons are permitted under certain conditions. <p>Humane cage trapping:</p> <ul style="list-style-type: none"> - Permitted ensuring they comply under the <i>Animal Welfare Act 1999</i>. <p>Leghold traps:</p> <ul style="list-style-type: none"> - Padded leghold traps permitted ensuring they comply under the <i>Animal Welfare Act 1999</i>.

STATE	Declared as pest within state legislation	Relevant legislation relating to cat management	Cat management tools available within jurisdiction
			<p>Dogs:</p> <ul style="list-style-type: none">- Dogs may be used to locate, point and flush feral cats ensuring compliance under council by-laws, the <i>Animal Welfare Act 1999</i> and <i>Animal Welfare Regulations 2000</i>. <p>Felixer grooming trap:</p> <ul style="list-style-type: none">- No specific legislation allowing the use of Felixers at this stage.- Until broadscale registration is received, Felixers can only be operated with toxins if approved by the APVMA and State or Territory 1080 authorities.