



Australian Government
Department of the Environment

Threat abatement plan for predation by feral cats (2008)

Five yearly review
2014

PURPOSE OF THE REVIEW

Under section 279 of the *Environment Protection and Biodiversity Conservation Act 1999*, the Minister must review each threat abatement plan at intervals of not longer than five years, and consider whether a variation of the plan is necessary. The threat abatement plan for predation by feral cats was made by the Minister in 2008.

Reviewing threat abatement plans, at least every five years, allows for an assessment of whether the threat has been abated or, if not, what progress has been made towards abating the threat. It is acknowledged that some key actions listed in threat abatement plans may take longer than five years to achieve, such as research into the development of new toxins and baiting methods. The review of a threat abatement plan assesses progress and effectiveness of progress across all actions in the threat abatement plan. It also considers progress towards threat abatement in associated ways, such as related work done through recovery plans for specific species. Finally it also considers if the threatened species are still being threatened by the subject of the threat abatement plan.

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SUMMARY

The threat abatement plan for predation by feral cats has the goal of minimising the impact of feral cats on biodiversity in Australia and its territories by: protecting affected native species; and preventing further species and ecological communities from becoming threatened. This goal has not been achieved during the life of the plan. The broad objectives of the plan of identifying high conservation value sites for targeted control of feral cats, improving the knowledge and tools that can be applied to feral cats and increasing awareness of stakeholders, including the community, about the problem of feral cats are still valid in 2014.

The review has found some significant advances in feral cat research, development and control since 2008. One island eradications have been undertaken and three are in progress, a number of fenced “islands” have been created or are being built, the Western Australian toxic bait Eradical[®] is close to registration, and the Curiosity[®] bait is finalised in its development phase. Monitoring techniques have made massive leaps forward with the use of remote sensing cameras and GPS tracking collars. There is regular media focused on the problem of feral cats, and an ongoing public discussion about the impacts of domestic cats and their contribution to the damage caused by feral cats.

However, feral cats are a serious vertebrate pest in Australia and still pose a threat to more than 150 threatened mammals, birds, reptiles and frogs in Australia. Until Curiosity[®] is available for broad-scale use, and a similar cat bait available for northern Australia, land managers are still limited in their ability to effectively control feral cats. The current tools of trapping and shooting generally are too resource intensive for land managers to apply effective control over anything other than a small area.

This review concludes that the key threatening process is still valid and that a threat abatement plan is still a feasible, effective and efficient means to abate the threat. However, the plan could be usefully updated to include the advances mentioned above especially in the area of ecological management of feral cats.

OBJECTIVE ONE

Prevent feral cats occupying new areas in Australia and eradicate cats from high-conservation-value 'islands'

This objective focuses on the concept of working out the best areas in which to target feral cats to benefit biodiversity. The concept of an island is used and this includes both offshore islands and isolated (either fenced or isolated by geography/habitat) mainland areas. The actions step through working out priority areas, developing management plans, undertaking eradications and monitoring results.

The performance indicators show:

1. No further establishments of feral cats in cat-free areas, particularly on offshore islands.

There have been no establishments of feral cats on offshore islands since 2008.

There are no non-fenced feral cat free areas on mainland Australia to prevent establishments. However, there are a number of fenced cat exclusion sites (mainland 'islands' or 'arks').

One of the first fenced areas was the Curranwinya bilby fence in Queensland. Unfortunately feral cats briefly established inside the fence following good rain and flooding in 2010-11 damaged the fence and allowed them to get in. This has been repaired but emphasizes the ongoing monitoring and maintenance required with a fenced area.

Other fenced areas include the Arid Recovery site in South Australia (a partnership between the University of Adelaide and BHP Billiton); Mulligan's Flat in the Australian Capital Territory (ACT Government); Mt Gibson in Western Australia (Australian Wildlife Conservancy (AWC)), Yookamurra in South Australia; Karkamia in Western Australia (AWC); Chidlow in Western Australia (AWC); Nangeen Hill in Western Australia (a partnership between the WA Government and WWF-Australia). The NSW government announced in 2014 its intention to reintroduce mammals that had become extinct in NSW into enclosures in national parks – sites are still to be determined.

2. Local communities recognise the importance for high conservation areas to be kept cat free.

There has been an increase in the number of local government areas around Australia that have requirements for 24 hour containment of domestic cats to protect native wildlife. An example of this is the cat-containment suburbs around the Mulligan's Flat reserve in the north of the Australian Capital Territory where a number of threatened species have been released. Territory government enforcement of the regulation has been inadequately resourced and the Australian Capital Territory has found that the level of compliance has decreased over time as properties have turned over and new residents have not received the same level of education. A second example is on Kangaroo Island, South Australia where a local by-law requires 24 hour containment and limits the number of de-sexed cats owned (IACRC, 2013).

The Shire of Christmas Island and residents have understood the threat from feral cats to their biodiversity and have agreed to a long-term program to remove domestic cats from the island. This has commenced with de-sexing of all domestic cats and limiting current ownership to two animals. No new cats will be allowed on the island.

These are two examples of working with communities. Most of the fenced predator-exclusion areas in Australia are more remote and the pressures on the fences will be from feral cats rather than stray or domestic cats. Predator control around the perimeter of fences is recognised as essential and is undertaken by groups managing the enclosures.

3. Successful eradication of isolated populations of feral cats where this is attempted.

Eradication of feral cats from Tasman Island, Tasmania was undertaken between 2008 and 2011 using a combination of baiting, trapping, shooting and detector dogs. Nesting seabirds are now being monitored to demonstrate the recovery of these species.

Sea Rangers from the Li Anthawirriyarraa Sea Ranger Unit in association with Rachel Patridge from Desert Wildlife Services have been attempting an eradication of feral cats from West Island in the Sir Edward Pellew Islands of the Northern Territory (Gulf of Carpentaria). A variety of tools have been tried including cage traps, rubber jaw traps and baiting. The final project report (Li-Anthawirriyarra Sea Rangers and Rachel Paltridge, 2013) expected that the final cat/s would take baits during the 2013 dry season (monitoring had only picked up one feral cat remaining).

Eradication is underway on Dirk Hartog Island, Western Australia for a suite of species including feral cats. This island is large so is being tackled in two halves with the first being successfully baited in 2014. The plan is to bait the second half in 2015 and to use a combination of tools to remove the final animals (WA Department of Parks and Wildlife (2012)).

Eradication is also underway on Christmas Island using a bait system with suspended baits to prevent non-target impacts to the island's crabs (Algar & Johnston, 2010).

4. Increased populations of affected native species in areas from which cats, and other invasive species, have been eradicated.

There have been demonstrated increases in the numbers of threatened species inside of predator exclusion fences. The Arid Recovery site at Roxby Downs in South Australia has recorded increases of greater stick nest rat, burrowing bettong, greater bilby, and western barred bandicoot. Prior to the incursion the Curranwinya bilby fence in Queensland had recorded significant increases in the greater bilby population. The Australian Wildlife Conservancy is recording increases in native and threatened species populations inside fenced areas at Scotia, Western NSW; Yookamurra, SA; and Karakamia, WA.

Tasman Island in Tasmania is being monitored for increases in populations of breeding seabirds, in particular fairy prion, short-tailed shearwater and sooty shearwater. Populations of seabirds naturally have large fluctuations so scientists monitoring the birds are cautious in confirming the eradication of the feral cats has led to increases in populations, as would be expected.

Specific progress against the Actions in the threat abatement plan:

Action	Progress
1.1 Collate data on islands and on isolated mainland 'islands', assess their conservation value, the likelihood of significant biodiversity impacts from cats, and if there are no cats present, rank the level of risk of cats being introduced and having impacts in these areas.	Data on the presence of feral cats and other threats on offshore islands has been collated into the Feral Animals on Offshore Islands Database available as a Microsoft Excel document on the Department of the Environment's website at www.environment.gov.au/biodiversity/invasive-species/feral-animals-australia/offshore-islands . These data are still current.
1.2 Work with communities, landholders and managers in and adjacent to cat-free areas of high conservation value to minimise the chance of an incursion.	In some instances, such as in the ACT, information about cat containment or control is provided to communities in adjacent areas. However, problems with a declining level of education occurs over time (see notes above under performance indicator two). There is still poor community understanding of how domestic cats move to stray and/or feral cats, and that they are the same species.
1.3 Develop management plans to prevent, monitor and, if incursions occur, contain and eradicate any incursion by feral cats for 'islands' with high conservation values.	There is generally good understanding amongst managers undertaking eradications or putting up exclusion fences about the need to develop and implement management plans. There is a management plan in place for Tasman Island.
1.4 Implement management plans for high-conservation-value 'islands', including prevention and monitoring actions, and containment or eradication actions if incursions occur.	As above.
1.5 Eradicate established populations of feral cats from areas with high conservation values where this is considered feasible and cost-effective and is a high conservation priority.	Feral cats have been eradicated from Tasman Island and possibly West Island in the Sir Edward Pellew Group, and eradication programs are underway on Christmas Island (Algar, Hilmer, Nickels, & Nickels, 2011) and Dirk Hartog Island.
1.6 Monitor (using national monitoring protocols) native prey species in areas from which feral cats have been eradicated.	Monitoring of threatened species is a key component in management of a mainland exclusion fence. Arid Recovery in South Australia provide an example of four threatened species where good recovery has been demonstrated and a further two species where recovery has not worked for other reasons (such as predation by native predators). The Australian Wildlife Conservancy also conducts extensive monitoring of species recovery within their fenced areas.

In conclusion, we are part way to achieving the objective of preventing feral cats from occupying new areas in Australia and eradicating feral cats from high-conservation-value islands. We have an idea of priority areas for which it is important to control cats to very low densities for threatened species recovery. There is still a difficulty in achieving this because the tools currently available for feral cat control provide significant constraints to achieving

effective control on a broad scale (see objective four). There is increased activity in creating fenced reserves around key populations of threatened species across Australia and where these are designed to exclude predators, including cats, they can be very effective in recovery of populations.

Eradications achieved or underway are exciting developments that will demonstrate the value in removing feral cats from an ecosystem. The Christmas Island cat and black rat management plan demonstrates how it is possible to get the support of a community to eradicate cats from an island. The challenge will be to translate what has been learned on Christmas Island to other Australian islands where the islanders' culture and attitudes to cats are different (generally more favourable to cats).

This objective, with a modification to acknowledge that feral cats occupy essentially all of Australia, is still an objective that needs pursuing to effectively abate the threat from feral cats.

OBJECTIVE TWO

Promote the maintenance and recovery of native species and ecological communities that are affected by feral cat predation

This objective flows from objective one in considering priority areas for feral cat control and undertaking the ongoing control.

The performance indicators show:

1. Priority areas, where cat control is required to protect affected fauna, have been identified and are a focus for cat control programs.

Priority areas were identified in a report by the University of Sydney in 2010 (Dickman, Denny, & Buckmaster, 2010). The report uses an interactive decision-making tree based on characteristics of prey species to provide a relative measure of probable cat impacts between sites on the Australian mainland and offshore islands. The decision-making tree provides a single score for geographical (IBRA) regions, specific mainland sites and offshore islands that may be used comparatively for the allocation of resources for cat control programs.

At Lorna Glen in Western Australia, the Department of Parks and Wildlife has been undertaking control of feral cats using the Eradicat[®] bait. Control and monitoring between 2003 and 2009 for feral cats has determined the degree of long term suppression of the feral cat population and the level required to prevent significant predation and to begin reintroducing the 11 target arid-zone medium sized mammals (Algar, Onus, & Hamilton, 2013).

2. All feral cat control work involves pre and post-control monitoring of feral cat populations and key native species, according to national protocols, to measure the outcomes of control operations.

The need for and knowledge of how to undertake monitoring is well understood amongst field workers conducting control programs. Monitoring tools have also improved since 2008, particularly with the availability of remote sensing cameras and GPS collars. In tandem with the development of widespread use of remote sensing cameras has improved

knowledge how to attract feral cats to monitoring sites and an understanding of how the data captured relates to the feral cat population in the area.

The Arthur Rylah Institute for Environmental Research undertook a study between 2007 and 2010 evaluating detection methods and sampling designs, including the use of cameras (Robley, et al., 2010). Most recently (note that this review has not exhaustively searched for publications on this topic) Meek et al. (November, 2014) published a book on camera trapping.

3. Reliable native species population indicators are used to measure the outcome of reduced pest populations.

Monitoring the recovery of native species populations is standard in sites where feral cat populations are controlled or have been eradicated (e.g. fenced areas). For example Arid Recovery and the Australian Wildlife Conservancy monitor the native species recovery within their fenced reserves. The indicators used vary depending on the species being targeted.

Specific progress against the Actions in the threat abatement plan:

Action	Progress
<p>2.1 Identify priority areas for feral cat control based on:</p> <ul style="list-style-type: none"> the significance of the ecological community or the regional population of the native species threatened by feral cats the degree of threat posed by feral cats to species or ecological communities relative to other threats the cost-effectiveness of maintaining feral cat populations below an identified 'threat threshold' in the region, and the feasibility of effective remedial action. 	<p>The report <i>Identification of sites of high conservation priority impacted by feral cats</i> (Dickman, Denny, & Buckmaster, 2010) developed a methodology for prioritization of sites including cat presence, likelihood of invasion or re-invasion, threatened species present and vulnerability to predation and the status of the species at the site, which can be applied to regions or smaller areas.</p> <p>The cost-effectiveness of feral cat control to an identified threshold level has not been identified or published.</p> <p>Algar et al (2013) have evaluated the degree of suppression of feral cats at Lorna Glen over time and believe the current rate of suppression at 50 baits per square kilometre applied at the right time is sufficient to start reintroducing some threatened species.</p>

<p>2.2 Conduct and monitor regional feral cat control through new or existing programs, in priority areas identified in Action 2.1.</p>	<p>Specific cat control programs are being undertaken in the following priority areas:</p> <ul style="list-style-type: none"> - Diamantina and Astrebla NP Queensland, and - Lorna Glen, Western Australia. <p>Cat control programs using the Western Australian Eradicat bait was also trialled at Mt Gibson and Karrara-Lochada in Western Australia with mixed results.</p> <p>Sustained feral cat control is currently difficult due to insufficient tools for the resourcing available (ie. too expensive, too much time required or a lack of skilled labour to shoot and trap feral cats).</p>
<p>2.3 Apply existing and new incentives to promote and maintain on-ground feral cat control on private or leasehold lands within or adjacent to priority sites identified in Action 2.1.</p>	<p>There are currently no existing or new incentives being provided for feral cat control.</p> <p>Some cat control is being conducted in localized priority sites using funding available as an offset under the EPBC Act. For example, feral cat control in the Fortescue Marsh, Pilbara, Western Australia as part of the Christmas Creek Water Management Scheme.</p>

In conclusion, this objective has not been met. The priority areas for feral cat control to benefit threatened species have been identified and the technique to identify areas can be adapted for use on different sized areas. In addition, many national park or conservation site staff and stakeholders would be able to easily identify priority sites within their own areas. A key inhibitor to conducting effective feral cat control in many of the priority sites is due to a lack of resources (including time, money, and skilled people) to apply the current control methods of shooting and trapping. With minor modifications, the actions in this objective remain valid into the future.

OBJECTIVE THREE

Improve knowledge and understanding of feral cat impacts and interactions with other species and other ecological processes.

This objective is focused on developing improved monitoring of the impacts of feral cats, their interactions with other predators and native carnivores, better understanding the impacts of cat-borne diseases, and what unintended effects might occur with isolated feral cat control.

The performance indicators show:

1. Reliable feral cat monitoring techniques have been developed.

As noted in objective two, Robley et al. (2010) undertook research to evaluate detection methods and sampling designs used to determine the abundance of feral cats. Stage one of the project investigated the detection probability of cage traps, leghold traps, a DNA sampling device, heat-in-motion activated digital cameras and sand plots. This stage was inconclusive in being able to accurately estimate feral cat populations but provided a

demonstration that where cat densities are low – as is typical in many places – a small sampling area or only a few devices is insufficient. Stage two using cameras gave an initial estimate of the number of cameras and camera nights needed to measure a significant change. These estimates have been refined by further researchers since this work was conducted in 2008 for a variety of different habitats.

Bengsen et al (2011) analysed the potential for camera detection of feral cats using a capture-mark-recapture study of feral cats on Kangaroo Island and found the use of camera data was able to produce valid indices of relative abundance.

A note of caution needs to be included around the use of remote sensing cameras for accurately estimating population abundances or densities. If the cameras are poorly located or the data mis-interpreted there can be a false understanding of feral cat abundance. It will be important for researchers to apply correct techniques in the future with the expected increased use of cameras. The book by Meek et al (November, 2014) may assist in improving this understanding.

A range of lures, both commercial (e.g. Feline Attracting Phonic – an audio lure, Kentucky Fried Chicken as a scent lure) and home-made (e.g. tinsel or feathers as a visual lure) have been developed and different ones or combinations appear to work to attract feral cats, depending on location or time of the year.

The use of tracking collars on feral cats has improved with GPS loggers as well as VHF being able to provide finer scale information on cat movement in both in the landscape and through time. Further advances in this area are expected with remote download technology, the use of cameras on the animals, and improvements in the reliability of automatic drop-off functions etc.

2. Feral cat control activities are targeted more strategically and better integrated with control of other invasive species.

There is a greater understanding of how to integrate the control of feral cats with other feral animal control programs but this science is still imperfect.

We know that wild dogs, dingoes and foxes will control cats through direct predation and by changing or suppressing the way that feral cats use the landscape, but we don't have an accurate idea of the extent to which this occurs. This is needed to be able to effectively understand the role of other invasive predators when trying to implement a control program for feral cats, or to respond to pressure to reintroduce dingoes as a control tool.

We understand that feral cats prey upon rabbits and rodents, as well as native mammals. The potential for growth in the populations of rabbits and rodents if a control program is undertaken for feral cats is also understood. Macquarie Island, in the Southern Ocean, provided a good example. Eradication of feral cats was achieved in 2002 following a long program (technology at the time meant it was not possible to also effectively eradicate rabbits or rodents) (Robinson & Copson, 2014) and the release of the rabbits from predation by cats severely damaged the ecosystem prior to eventual eradication in 2014.

There is also some understanding being gained on the impacts on native wildlife of toxoplasmosis spread by feral cats (e.g. affecting bandicoot populations in Tasmania (Fancourt, 2014)) but this is still limited.

3. The unintended effects of feral cat control are avoided.

It is well understood that undertaking a control program with a single species may have unintended effects on other parts of the ecosystem. We have an understanding of some of the effects and the links extend beyond the impacts on other animals, both predators and prey. For example, the Australian Wildlife Conservancy has been investigating the links between feral cat predation and fires within the landscape (McGregor, Legge, Jones, & Johnson, 2014).

Specific progress against the Actions in the threat abatement plan:

Action	Progress
3.1 Develop simple, cost-effective methods for monitoring the impacts of feral cats, including reliable methods for monitoring feral cats and key native species at different densities.	Specific studies have been undertaken in assessing the effectiveness of monitoring methods for feral cats. The development of remote sensing cameras has significantly changed the monitoring approaches used since 2008. Understanding how to effectively use cameras and interpret the results still requires more work to be able to monitor across all types of landscape. GPS tracking collars are providing improved information on cat movements when detailed studies are being performed (Johnston, et al., 2013).
3.2 Investigate interactions between feral cats and native carnivores to identify the relative significance of competition and predation by feral cats.	Interactions between feral cats and quolls has been studied in northern NSW (e.g. (Glen & Dickman, 2013) and far east Gippsland, Vic. ((Buckmaster, 2011)). Questions have been raised about the interactions between feral cats and Tasmanian devils, with the decline in devils allowing feral cats to increase predation and disease spread (e.g. (Fancourt, 2014).
3.3 Determine the nature of interactions between feral cats, foxes and wild dogs to effectively integrate control activities for all three species.	A significant number of research papers have been published looking at the interactions between predators in Australia (e.g. Allen et al. (2013), Cupples et al. (2011), Wang & Fisher (2012)). While many of these have a predominant focus on wild dog and fox interactions there are some that also consider feral cats. This work is ongoing.
3.4 Determine impacts of cat-borne diseases, such as toxoplasmosis, on native species.	There has been some research into toxoplasmosis, especially in Tasmania (e.g. Fancourt (2014), Hollings et al. (2013)) but little into other cat-borne diseases.
3.5 Identify any unintended effects that feral cat control may cause if conducted in isolation from other management activities.	The potential for unintended effects of control of feral cats is understood.

In conclusion, this objective has been partially met but there is still a significant amount of research required to fully understand feral cat impacts and interactions. There is an improved

understanding of feral cats' role in different types of Australian ecosystems and their interactions with other species including other predators. There are now better monitoring tools with the advances in remote cameras, GPS tracking collars, lures and other tools, and these are expected to improve over the coming years. The quality of the data and interpretation of the data is also expected to improve as knowledge and education of the use of cameras increases. Understanding of the impacts of cat-borne diseases is still poor and there appears to be little research being conducted in this area. Overall, it is anticipated that this is an area where rapid progress will be made over the next five years providing resources are available to conduct research or fully monitored cat control projects.

OBJECTIVE FOUR

Improve the effectiveness, target specificity, humaneness and integration of control options for feral cats

This objective is focused on developing more tools for the control of feral cats, particularly on a broad scale. In addition it is important to ensure that control methods are undertaken in a way that is as humane as possible. A complete program also considers rehabilitation of habitat and species recovery following the control of feral cats. However, the major focus (a very high priority action) is the development of an effective broad-scale toxic bait.

The performance indicators show:

1. Widespread use of improved cat baiting tools.

The Western Australia Government are expected to have a registered cat bait – Eradicat[®] – in 2014-15, which will allow its continued use (previously under temporary permits) in Western Australia. This bait contains directly injected 1080 toxin and as such is only suitable for Western Australia where some native plant species contain the active ingredient meaning that animals native to Western Australia are tolerant to a dose of 1080 which is toxic to a cat.

There is development of devices that exploit the fastidious grooming habits of cats. None of these are complete but are close to having a product to test (see the PestSmart factsheet on spray tunnel trials (IACRC (2013))). The device will either be a box or tunnel that the cat passes by or through. This tool will not be able to be deployed effectively broad scale but will be useful in some areas, such as thick heath habitats where cats use tracks or where feral cats can be lured in.

Curiosity[®] bait for feral cats has been undergoing field efficacy trials since 2008 with minor refinements of the product. This bait contains the new toxin para-aminopropiophenone, or PAPP, which is expected to be registered as an active ingredient in 2014-15 (an application by the Invasive Animals Cooperative Research Centre is lodged with the Australian Pesticides and Veterinary Medicines Authority). The Curiosity[®] bait also requires registration with the Australian Pesticides and Veterinary Medicines Authority before sale and use in Australia.

2. Increased use of exclusion fencing in situations where fencing is considered to be more cost-effective than ongoing baiting and to protect critically endangered species.

Exclusion fence designs have essentially standardised on models that are most effective in different situations. All of these designs have some sort of floppy or rolled top to prevent

cats and other predators climbing over, and some sort of apron at the bottom to prevent digging under. The design of corners is particularly important as these provide more climbing opportunities. Some designs also incorporate electric wires to prevent the challenging of the fence itself.

A number of predator exclosures have been built since 2008 including in the South West of Western Australia, in Central Australia and three by the Australian Wildlife Conservancy (they are currently building a fourth at Mt Gibson in Western Australia). Fences are viewed as an option for the recovery of threatened species where the other options of predator control are failing and species may go extinct.

3. Increased adoption and adaptation of the model codes of practice and standard operating procedures for humane management of feral cats, including their recognition as a reference under the National Competency Standards for Vertebrate Pest Management.

The model codes of practice (COP) and standard operating procedures (SOP) for humane management of feral cats were updated in 2012. The COP and SOP are promoted by governments and through the Invasive Animals Cooperative Research Centre. It has not been possible to measure the increased adoption of the COP and SOP.

Specific progress against the Actions in the threat abatement plan:

Action	Progress
4.1 Develop an effective toxin–bait for cats.	The Eradicator [®] bait has been developed for use in Western Australia. The Curiosity [®] bait has been developed but not yet registered for use in southern and central Australia. A project is proposed for a variant of Curiosity [®] bait containing 1080 that will be suitable for northern areas of Australia.
4.2 Determine appropriate baiting strategies for various regions.	Western Australia Department of Parks and Wildlife have determined that 50 baits per square kilometre is an appropriate baiting strategy for most areas (Algar et al (2013)). Site specific variations will be required to accommodate different use of the landscape by feral cats. Christensen et al. (2012) used three Western Australian sites to assess and predict baiting success. This will be applicable to baiting of other sites in the future.
4.3 Ensure that habitat rehabilitation and management of potential prey, competitors and predators of feral cats are considered in feral cat control programs.	Feral cat control programs are focused on providing habitat for species recovery so the plans incorporate rehabilitation. See objective three for a description of the management of competitors and predators.
4.4 Test and disseminate information on exclusion fence designs regarding their cost-effectiveness for particular habitats or topography.	Exclusion fence designs are well established and there are a number of different manufacturers who offer exclusion fences for sale.

4.5 Continue to promote the adoption and adaptation of model codes of practice and standard operating procedures for the humane management of feral cats.	Model codes of practice and standard operating procedures were updated in 2012 and are promoted by governments and the Invasive Animals Cooperative Research Centre. They are publicly available on the www.feral.org.au website. It may be necessary in the near future to update with additional techniques such as the use of trained dogs to capture feral cats.
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In conclusion, there are two broad-scale toxic baits developed for feral cats. Neither of these are available to the market yet (Eradicat[®] has been developed for Western Australian Government use) but it is anticipated that the Curiosity[®] bait will be available for use in southern parts of Australia in a year or two, subject to registration processes. There is still a gap in northern Australia where the Curiosity[®] bait is unable to be used because of the susceptibility of varaniids to a cat-sized dose of the PAPP toxin. An option in this area is to develop a variation using the 1080 toxin, but field non-target species testing and registration is required before the products would be available across all of Australia. It should be noted that toxic baits will not replace the need for an integrated control program using a variety of tools and that baiting still may not be appropriate in some areas because of non-target bait take (e.g. dingoes).

Exclusion fences are an important element of control options at present where cat populations cannot be effectively controlled to a low enough level for persistence of threatened species populations. This also will continue to be the case when toxic baits are available. Fortunately the design of exclusion fences is well known and they have proven effective in a variety of habitats.

OBJECTIVE FIVE

Increase awareness of all stakeholders of the objectives and actions of the TAP, and of the need to control and manage feral cats

This objective focuses on communication, to stakeholders in ensuring feral cat control is undertaken in the best possible way, and to the community to ensure understanding of why feral cat control is needed and gain support for control programs.

The performance indicators show:

1. Widespread use of current best-practice techniques in feral cat control.

The current tools of trapping and shooting of feral cats are used, and governments promote the use of standard operating procedures to ensure best practice. However, with the lack of broad-scale, cost-effective techniques there is little actual broad-scale control undertaken.

2. Increased awareness of the impacts of feral cats.

There is a general public awareness of the problem of feral cats but this tends to wax and wane with the level of media attention to the problem (i.e. polls asking for opinions on

priority environmental issues highlight feral cats when the topic has been in the media in recently). Media focusing on the problem of feral cats causing a decline in small mammal populations in northern Australia and more widely has assisted in educating a portion of the population with an interest in wildlife.

There is still a poor general understanding that there is no difference between a domestic cat and a feral cat, and a poor acceptance that cats may move between the domestic, stray and feral populations.

3. Increased awareness of the TAP actions and objectives.

It has not been possible to measure the awareness levels of the threat abatement plan actions and objectives. However, increased promotion by the newly appointed Threatened Species Commissioner and the current Minister for the Environment has focused particularly on the threat abatement plan and the high priority action of developing an effective toxin-bait for cats (Curiosity®). In addition, the Australian Wildlife Conservancy and the Save the Bilby Association has been actively promoting the use of exclusion fences as a way of conserving threatened species.

4. Community support for the use of lethal control methods.

The community support for a cat bait has not been tested but it is anticipated that there will be a mix of views related to lethal control methods. Correspondence to the Minister and the Department reflects the range of views.

Specific progress against the Actions in the threat abatement plan:

Action	Progress
5.1 Promote: <ul style="list-style-type: none"> • broad understanding of the threat to biodiversity posed by feral cats and support for their control • support for the specific actions to be undertaken under this plan • the use of humane and cost-effective feral cat control methods • best-practice effective cat control in all tenures, and • understanding of predation by feral cats as a key threatening process. 	<p>This action has two focus groups.</p> <p>Firstly, people working on feral cat control understand the prioritisation of areas, codes of practice, tools available etc that are covered by this threat abatement plan.</p> <p>Secondly, general public understanding of the problem is good but can be variable depending on media coverage of the issue. There is a high demand for humane methods to be used.</p>
5.2 Develop specific communication campaigns to accompany the release of new broadscale cat control techniques, in order to address public sensitivities about cat control.	This has not been done as the Curiosity® bait is not yet available.

In conclusion, this objective will never be fully met while there is a need to control feral cats. However, the sensitivities of community attitudes are well understood and this will inform future communications.

OTHER ACTIONS / ISSUES

Trap-Neuter-Release programs

There are regular propositions to use trap-neuter-release (return) programs for the control of stray and feral cats in Australia. The RSPCA released a research report in 2011 (RSPCA, 2011) that investigated the issue. With respect to feral cats, the RSPCA concluded “for remote Australia where feral cats are completely unsocialised and therefore not candidates for rehoming, the most cost-effective and humane option is likely to be targeted and ongoing lethal control in priority areas where adverse environmental impacts are highest”.

This is reinforced by the Australian Veterinarians Association (Australian Veterinary Association, 2012): “Un-owned cats should not be fed, but should be reported or captured and handed over to welfare agencies or the local government authority. Education around prevention of owned cats becoming lost or stray is essential and humane killing may be required where the colony is a public nuisance or the welfare of the colony is threatened. Trap, de-sex and return strategies have limited utility in Australia.”

State and territory legislation

Domestic cats can be a source population for stray and feral cats. The regulation of domestic cats is the responsibility of state and territory governments. Requirements for domestic cat ownership vary across the country but all states and the Australian Capital Territory require micro-chipping and registration. Western Australia, Tasmania and the Australian Capital Territory also require de-sexing of domestic cats.

The regulation of feral cats is also variable with the declaration of cats as pests falling under different types of legislation, or not at all.

State/Territory	Feral cats
Australian Capital Territory	Not a declared pest.
New South Wales	Declared as category 4&5 (animals the importation and keeping of which are not restricted; animals that are already widespread pests) under the <i>Non-Indigenous Animals Act 1987</i> . Are listed as a game animal under the <i>Game and Feral Animal Control Act 2002</i> . Are not subject to a pest control order under the <i>Rural Lands Protection Act 1998</i> .
South Australia	Not a declared pest.
Queensland	Declared class 2 pest animal under the <i>Land Protection (Pest and Stock Route Management) Act 2002</i> .
Western Australia	Not declared under the <i>Biosecurity and</i>

	<i>Agriculture Management Act 2007.</i>
Tasmania	Under the <i>Cat Management Act 2009</i> cats found in a prohibited, rural or remote area may be trapped, seized or humanely destroyed.
Victoria	Not a declared pest.
Northern Territory	Declared under the <i>Territory Parks and Wildlife Conservation Act 2006.</i>

Australian Government support for on-ground action

Appendix 1 lists projects from on-ground funding programs since 2008.

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APPENDIX 1: FUNDING

Funding provided through Australian Government on-ground action programs. Note that the funding listed is for the entire project and only a component of this will be for feral cat control. This funding totals almost \$6 million from 2008 to present.

Project	Location	Start	Finish	Originating Round	Project description	Contracted amount (GST Excl)
Cat management in the George Town coastal area	Tasmania	13-Feb-2009	13-Feb-2013	Caring for Our Country BP NHT 0809	The project will implement the national Threat Abatement Plan for Feral Cats program within the George Town coastal area surrounding the townships of Bellingham and Weymouth. The numbers of feral cats will be reduced and the potential for domestic cats to become feral and impact on wildlife will be addressed. In addition, community awareness of the threat that cats pose to significant coastal fauna will be increased through signage, brochures, presentations and workshops, and educational activities.	\$35,678.18
Addressing key threats to the Lower Ringarooma River floodplain Ramsar site	Tasmania	8-May-2009	8-May-2014	Caring for Our Country BP NHT 0809	The object of this Activity is the natural and cultural assets within the Lower ringarooma River Floodplain Ramsar Wetland that are currently under threat from unauthorised vehicle access, erosion processes, habitat fragmentation, weeds and feral cats. This project will protect and regenerate the Ramsar wetland; rehabilitate sand dune vegetation; protect critical habitat for threatened flora and fauna species; remove feral cats; improve water quality; protect cultural heritage; and raise awareness of the natural and cultural values of the area and emphasise how the community can play a part in protecting these assets for future generations.	\$180,600.00
Arid Recovery: developing new partnerships to restore our Arid lands	South Australia	16-Dec-2008	16-Dec-2013	Caring for Our Country BP NHT 0809	Increase the extent, condition and connectivity of Arid Recovery's reserve by eliminating rabbits and cats from the Red Lake expansion area to allow threatened species to increase their range from 60 to 80square km.	\$99,930.00

Project	Location	Start	Finish	Originating Round	Project description	Contracted amount (GST Excl)
Biodiversity and Natural Icons 69051	South Australia	14-Oct-2008	15-Oct-2012	Caring for Our Country Regional NHT 0809	The South Australian Arid Lands Natural Resources Management Board will a) implement in partnership with the community and industry, an ecosystem restoration program in Roxby Downs utilising onground works, applied research and re-introduction of locally extinct species; b) onground recovery actions for key threatened fauna; c) onground recovery actions for key threatened flora; d) strategic feral animal management across three South Australian Natural Resource Management Regions, utilising best management practice techniques to control large vertebrate pests (eg. camels, donkeys, horses) and feral carnivores (eg. foxes, cats).	\$459,800.00
Biodiversity on Bulloo Lakes	Queensland	1-Jul-2012	30-Aug-2013	Caring for Our Country BP 1213	Feral pigs and cats heavily impact the Bulloo River and Bulloo Lakes High Ecological Value Aquatic Ecosystem (HEVAE) in far South West Qld. Feral pig and cat control falls largely with the individual landholders in the project area when time and resources permit. South West NRM considers this approach as vastly inadequate to seriously control feral animal populations. A coordinated control program for pest animal is urgently required for the conservation of the ecological values of these sites. The program will consist of strategic aerial shooting and baiting at Bulloo Lakes. The remainder of the HEVAE will be aerial and ground baited with 1080 and pig out baits and the invasive animal CRC hog hoppers, a pig-specific alloy bait delivery device	\$144,000.00
Control of feral animals to protect the nesting sites of the Buff Banded Rail on Cocos-Keeling Islands	Cocos-Keeling	24-Mar-2009	25-Mar-2013	Caring for Our Country BP NHT 0809	Direction Island has been uninhabited since the Cable Station ceased its operation around 1965. A proposal has been granted to reintroduce the endangered Buff Banded Rail to the southern atoll via Direction Island as a starting point. The project aims to eradicate feral animals such as cats, rats and chickens to support the initiative of reintroducing the endangered species of Buff Banded Rail to the Southern Atoll from North Keeling Island; replanting of native tree species on the island; educating the community in taking ownership of the survival of the Buff Banded Rail; and assist local young people with employment and recognition for environmental protection.	\$14,250.00

Project	Location	Start	Finish	Originating Round	Project description	Contracted amount (GST Excl)
Creating Corridors and Restoring the Missing Links at Dingo Bend		1-Jul-2011	11-Sep-2014	Biodiversity Fund Round 1	Six management units have been identified (see attached map of registered property agreement area TR9906RP) as untreated and infested with invasive environmental and noxious weeds such as Lantana, Camphor Laurel, Small and Large Leaved Privet, Tobacco Bush, Moth Vine and Cats Claw Vine. Assistance is sought to fund additional weed management activities in areas 5 & 7 (Area 7 is not part of TR9906RP but adjoining, fenced, re vegetating private land) for the next three years using the labour of ourselves and two experienced bush regenerators. It includes the purchase of herbicides and tools required to complete the task outlined. This will create additional wildlife corridors, free from invasive weeds throughout our property.	\$18,300.00
Facilitating Coordinated Vertebrate Pest Control across Southern Qld	Queensland	1-Jul-2011	1-Sep-2013	Caring for Our Country BP 1112	This project is designed to deliver both biodiversity outcomes and productivity improvements for primary producers across southern Queensland through facilitating coordinated control of vertebrate pest animals. The project will identify and address some of the common misconceptions about impacts and control methods available for local vertebrate pest animals (in particular pigs, foxes and cats). Through linking with producers and collation of materials and delivery of workshops which present real data on the costs of these pest animals, their environmental impacts and ecological information on these pest animals. The workshops will provide solutions and practical information.	\$300,000.00
Fauna reconstruction of Dirk Hartog Island - Shark Bay World Heritage	Western Australia	1-Jul-2012	30-Dec-2013	Caring for Our Country BP 1213	Dirk Hartog Island in the Shark Bay World Heritage area is WA's largest island. Established as a national park in 2009 it provides the opportunity to largely restore the island's natural environment and reconstruct its native mammal fauna. The island formerly supported at least 13 species of non-volant mammals, of which only three still persist following introduction of feral cats, mice and goats and over 100 years of pastoral use. It is proposed that, following the successful eradication of sheep, goats and feral cats, 10 species of native mammals will be reintroduced to the island. Continued ground and aerial shooting programs, the use of 'judas' goats and other innovative techniques will be required to eliminate the sheep and goats.	\$269,500.00

Project	Location	Start	Finish	Originating Round	Project description	Contracted amount (GST Excl)
Feral Fauna Forum - managing invasive pests	Queensland	1-Jul-2011	16-Jul-2013	Caring for Our Country Community Action Grants 1112	In south east Queensland and the Wide Bay region, feral animals including foxes, cats, pigs and deer are causing widespread destruction to farming areas and loss of biodiversity. Deer out-compete native wildlife. Foxes, cats and wild dogs prey on domestic and native animals as well as turtle eggs. Feral pigs are one of the most destructive of all, causing widespread damage to crops and vegetation, as well as spreading diseases and parasites. Indian Mynas out-compete many hollow dependant native fauna. This project aims to improve awareness and facilitate coordinated actions to address these issues with land managers throughout the region.	\$8,800.00
Feral flora and fauna control at Back Beach, Streaky Bay	South Australia	30-Mar-2009	1-Apr-2013	Caring for Our Country BP NHT 0809	The purpose of this project is to control of African Boxthorn infestations and feral foxes and cats around Hawley Farm in the Back Beach area of Streaky Bay, with the aim to increase the habitat availability for native flora and fauna and reduce the predation by foxes and cats on native species.	\$22,225.00
Increasing biodiversity and habitat health through vertebrate pest removal	South Australia	10-Nov-2011	1-Sep-2013	Caring for Our Country BP 1112	The project will remove vertebrate pests to increase biodiversity and restore and protect habitat that is currently under threat. The habitat includes protected Peppermintbox and Lomandra grassland plant communities and listed species such as Monarto Mintbush. This will be achieved by upgrading the existing perimeter fence to make a 1000 ha property feral proof, allowing for staged eradication to completely remove rabbits, cats and foxes. Pest eradication will allow for improved regeneration in remnant vegetation, increased success in revegetation and a space for the successful release of species that are currently under threat in the region, including Mallee Fowl.	\$179,400.00
Increasing the Resilience of "Bandicoot Corner" to Pest Species Incursions	Victoria	1-Jul-2011	30-Sep-2013	Biodiversity Fund Round 1	Bandicoot Corner is a small reserve that has been established for the preservation of the Southern Brown Bandicoot, (Isodon obesulus obesulus). It is a relatively intact area of remnant vegetation with significant biodiversity within a highly modified rural landscape. Although the reserve is protected by predator fence; incursions by invasive species such as Red Fox, feral Cat, and European Rabbit still occur. Foxes and feral Cats prey on Southern Brown Bandicoots; Rabbits are identified as a threat via habitat degradation. This project will strengthen the perimeter fence as a barrier to pest incursions; monitor and remove reduce pest animal populations within the reserve.	\$10,000.00

Project	Location	Start	Finish	Originating Round	Project description	Contracted amount (GST Excl)
Innovative management of invasive species in the Maralinga Tjarutja Lands, SA	South Australia	1-Jul-2012	30-Aug-2013	Caring for Our Country BP 1213	At least four community members of the Maralinga Tjarutja (MT) Lands will be trained to combine traditional knowledge and skills in a contemporary scientific framework in order to carry out animal track surveys. Cats and foxes have been shown to pose significant threats to EPBC listed species including mallefowl and the sandhill dunnarts. This project will reduce the impacts of cats and foxes, using innovative and highly target specific technology to reduce their numbers and the threats they pose. The training program provides an opportunity for community members to attain a certificate iv in conservation and land management, to apply the training through the survey work and ultimately inform the strategy for positioning of the baiting stations.	\$139,192.00
Integrated feral animal control at the Ningaloo Coast World Heritage Area	Western Australia	1-Jul-2011	31-Mar-2015	Caring for Our Country BP 1112	This project will develop and implement an integrated feral animal control program in conjunction with neighbours and stakeholders to reduce the impact of feral animals on threatened species and habitats. The program, focusing on Cape Range National Park and radiating out across the World Heritage area, will provide landscape scale management of goats, cats and foxes with a focus on reducing their impacts on threatened species including nesting sea turtles and black footed rock wallabies. The program will assess current control methods, set up monitoring programs, gather existing baseline data and introduce a range of control methods to provide an integrated pest management approach most effective for the Ningaloo Coast.	\$496,000.00
Jarrah Forest in Decline: Controlling Ferals and Restoring Damaged Jarrah Forest	Western Australia	1-Jul-2011	30-Jun-2013	Caring for Our Country Community Action Grants 1112	Wildlife Australia Incorporated (WAI) operates from the Kaarakin Black Cockatoo Rehabilitation Centre (BCRC) and is situated on the outskirts of Perth. It is surrounded by the Jarrah/Marri/W andooforest of Banywola Regional Park (BRP). The 18ha acre site is heavily impacted upon by feral foxes and cats that kill endemic fauna on site and in the surrounding BRP. WAI has a ongoing revegetation program to rehabilitate a severely degraded former wildlife park and eradicate feral animals. Both programs aim to reduce the impact of invasive flora and fauna species and promote and protect native fauna and flora in this biologically sensitive important area. This is in line with Caring for Our Country's 5 year plan in Biodiversity and Conservation.	\$19,810.00

Project	Location	Start	Finish	Originating Round	Project description	Contracted amount (GST Excl)
Kaanju Ngaachi Wenlock and Pascoe Rivers	Queensland	1-Jul-2013	30-Jun-2018	Working on Country 1318	This project will employ 3 part-time Indigenous rangers to implement the priority actions of Kaanju Ngaachi Indigenous Protected Area (IPA) Management Plan. The Kaanju Ngaachi IPA features tropical savannah, upland tropical and sub-tropical rainforests, woodland, sand ridge country, wetland areas and riparian forests. The rangers' biodiversity protection measures will address key threatening processes for the IPA, including feral pigs, cats and invasive weeds. ...	\$664,091.00
Mitigating two threats from invasive species to bird values of Western Port Rams	Victoria	9-Jan-2010	30-Oct-2012	Caring for Our Country Community Action Grants 1011	Shearwater birds are threatened by boxthorn weed which entangles birds and provides cover for feral cats. The recent presence of common myna birds is an additional threat. This project will undertake weed and cat control, revegetation with native grass and elimination of introduced birds. Boxthorn will be hand cut, painted with Roundup by volunteers or chainsawed by contractors in winter while seabirds are absent. Myna birds will be controlled using approved methods. Pre and post treatment statistical counts will be used to measure conservation gains and maintain a data set. The project will increase farmers awareness and the wider community of the need to reduce introduced wildlife and weeds of national significance.	\$13,600.00
Mitigating two threats from invasive species to bird values of Western Port Rams	Victoria	1-Jan-2010	30-Jun-2011	Caring for Our Country Community Action Grants 0910	Since 1996 we annually remove boxthorn from Tortoise Head, French Island in Western Port Ramsar site and counted shearwaters measuring breeding success. Boxthorn, a Weed of National significance, entangles birds and provides cover for feral cats. 80% of the standing weed was removed but regeneration requires a renewed effort. This work is integrated with feral cat and other weeds control with Parks Victoria and Department of Primary Industries. Appropriate controls will be used to control the expansion of the Indian myna into Nature Reserves included and neighbouring Ramsar site.	\$20,000.00

Project	Location	Start	Finish	Originating Round	Project description	Contracted amount (GST Excl)
Northern Holroyd Plain Aggregation HEVAE Protection - Pormpuraaw L&SM Rangers	Queensland	1-Aug-2011	30-Jun-2013	Caring for Our Country BP 1112	The project aligns with the existing Pormpuraaw Land and Sea Management work program to deliver targeted priority pest, feral and other animal control work to protect and restore high ecological values aquatic ecosystems (HEVAE) including a wetland of National Significance and other wetlands of high ecological value located on Pormpuraaw Aboriginal lands and waters within the Northern Holroyd Plain Aggregation. Targeted pests include Rubber Vine, hyptis and caltrops; feral pigs, cats, horses, cattle and wild dogs. All species are identified as high priority pest species in the Pormpuraaw Pest Management Plan 2010-2015 and Ngamp inth Wantharr Yumpnham Pormpuraaw Land & Sea Country Cultural and Natural Resource Management Plan 2010-2012.	\$170,704.50
Pest eradication in the Paroo	Queensland	1-Jul-2012	30-Aug-2013	Caring for Our Country BP 1213	South West NRM intends to protect the critical environment of the Paroo River HEVAE and RAMSAR areas by eradicating and controlling feral vertebrates. Working alongside multiple industry/research partners and land managers to create holistic suite of activities across the Paroo River to reduce the impact of feral pigs, foxes and cats on the ecological values of the HEVAE and RAMSAR areas.	\$125,000.00
Post Flood Recovery of South West Qld's critical aquatic habitats.	Queensland	1-Jul-2012	30-Aug-2013	Caring for Our Country BP 1213	The recent devastating flood event of 2012 within the South West Qld region will dramatically increase the population densities of feral pest animals (especially pigs and cats) and their refugia across critical aquatic habitats. The flood water connectivities to areas of the Paroo and Bulloo HEVAE and RAMSAR will increase exponentially the distribution and potential damage from feral pests. Our project aims to pro-actively manage this heightened threat by the utilisation of aerial and ground baiting of 1080 and the aerial shooting of feral pests in the HEVAE listed areas. This proposal will be a critical and strategic action to ensure an acceptable level of threat abatement to the many threatened and endangered species reliant on a pest resilient refugia.	\$180,000.00

Project	Location	Start	Finish	Originating Round	Project description	Contracted amount (GST Excl)
Protecting and Restoring Marsupial Habitat in Pullen Pullen Catchment	Queensland	1-Jul-2011	25-Jul-2013	Caring for Our Country Community Action Grants 1112	This project aims to protect and restore critical remnant habitat of five iconic marsupial species - the sugar glider, squirrel glider, the yellow-footed antechinus, the brush-tailed phascogale & the long-nosed bandicoot, known to inhabit key bushland areas in the Pullen Pullen Catchment. Habitat loss and predation by domestic & feral animals (cats & foxes) are the key threats to their survival. Weed removal and revegetation works at two strategic project sites, engaging community, corporate volunteer groups & contractors, will enhance critical habitat areas. Four community tree planting & wildlife spotlighting events, and a media education strategy will be delivered to engage & educate the community. 400-450 people expected to participate.	\$13,820.00
Redwood Park Rainforest Fauna and Flora Rescue	South Australia	2-Apr-2013	31-Dec-2014	Community Environment Grants 1314	This project will eliminate approximately 80 ha of endangered dry rainforest, regional ecosystem 12.8.21 with some riverine wetland. Extensive infestations of the exotic vines, madeira vine, cats claw creeper and climbing asparagus, all WONS weeds, are placing the structure of the forest at severe risk, while coral berry, lantana and privet are also prevalent. The rainforest here is a known habitat for the vulnerable Black Breasted Button Quail (Turnix melanogaster). The endangered orchid Sarcochilus weinthalii is under increasing threat from Cats Claw Creeper and Climbing Asparagus. Friends of the Escarpment Parks will utilise the volunteer resources of Conservation Volunteers Association for the project.	\$50,000.00
Repel the Invaders Actions	South Australia	14-Oct-2008	15-Oct-2012	Caring for Our Country Regional NHT 0809	The Kangaroo Island Natural Resources Management Board of South Australia will undertake an integrated biosecurity strategy to manage, control, monitor, and eradicate pests such as: deer, goats, pigs and cats from the Island, as well as detecting new introductions of pests and diseases. This supports a 'prevention rather than cure' approach to maintaining Kangaroo Island free of pests and diseases.	\$372,000.00

Project	Location	Start	Finish	Originating Round	Project description	Contracted amount (GST Excl)
Restoring 100,000 ha of tropical woodlands by establishing herbivore free area	Northern Territory	1-Jul-2011	11-Sep-2014	Biodiversity Fund Round 1	There is a well documented, continuing and catastrophic decline in the abundance of small mammals across northern Australia due to the interaction of altered fire regimes, feral cats and introduced large herbivores. AWC intends to reverse this decline over a 100,000 ha area of Wongalara Sanctuary by reducing the frequency and extent of late dry season fires and by removing the impacts of large introduced herbivores. This approach has successfully reversed the decline of small mammals at AWC's Mornington Sanctuary (Kimberley). As Wongalara is immediately adjacent to Arnhem Land, successful restoration of ecosystem function here will be immediately relevant to management of an additional 9.7million ha that is continuing to suffer declines.	\$171,600.00
Riparian Vegetation Protection on the Rocky River NSW	New South Wales	1-Jan-2010	30-Dec-2011	Caring for Our Country Community Action Grants 0910	This project will address a significant threat to the biodiversity and habitat values within the riparian area of the Rocky River, and its tributaries. This threat is the invasion of Cats Claw Creeper, which is spreading across native vegetation along the river, often choking and killing large trees and shrubs. Many of these trees that have been killed have then been washed out of the river bank during flood events leaving large areas vulnerable to erosion. The Cats Claw Creeper is reducing the availability of large habitat trees along the river and flowering food trees such as bottlebrush, reducing the habitat values in the riparian zone.	\$19,863.64
Saving EPBC listed species by controlling introduced predators	Western Australia	16-Jul-2012	31-Oct-2013	Caring for Our Country BP 1213	The impact of feral cat predation has increased on the south coast of WA following years of large scale fox control. This project will continue aerial baiting trials to reduce the threat of predation by feral cats and foxes in key conservation reserves, reducing critical threats to over 300,000ha of key habitat of 18 EPBC listed fauna species including the Critically Endangered Gilbert's Potoroo and the Endangered Western Ground Parrot. Monitoring and evaluation will be based upon a MERI framework to demonstrate the efficacy of feral cat control methods and the effect that implementation of these management activities has on the recovery of EPBC listed fauna species	\$92,000.00

Project	Location	Start	Finish	Originating Round	Project description	Contracted amount (GST Excl)
South Coast Integrated Biodiversity Management Project	Western Australia	1-Jul-2011	11-Sep-2016	Biodiversity Fund Round 1	This project will address the impact of introduced predators on native fauna in the south coast region of Western Australia by developing appropriate methods for control of feral cats and integrating these with fox control in key conservation reserves within the South Coast Macro Corridor coastal corridor. Developing suitable methods of control for these predators throughout the landscape will provide direct benefits for land managers and communities in surrounding landscapes by reducing the threat of predation on native species within reserves, wildlife corridors and neighboring patches of remnant vegetation. Knowledge gained through this project will be applied throughout the landscape.	\$1,450,000.00
Support for carnivorous pest control		14-Jul-2008	16-Jul-2012	Caring for Our Country Regional NHT 0809	This work provides direct support to increasing the number of sustainable populations of native fauna species by carnivorous predator control. Improvement in biodiversity will be achieved over 7,000 hectares by providing incentives to landholders for control of carnivorous predators including: foxes, pigs, feral cats and dogs.	\$7,700.00
Threat abatement for key habitat of migratory and threatened shorebirds in south	South Australia	30-Jun-2008	13-Mar-2015	Caring for Our Country BP NHT 0809	The Limestone Coast and adjoining Coorong coastline is of national significance as habitat for the nationally critically endangered Orange Bellied Parrot and contains seventeen sites of international importance for seven species of migratory shorebirds protected under international migratory agreements. This project will abate the threat of feral animals, particularly foxes and cats to these migratory shorebirds and their nesting habitat through an intensive and collaborative management program spanning along the coastal reserves and adjoining agricultural land. This will alleviate pressure on the already vulnerable status of several migratory shorebirds that nest in these areas and indirectly. (Refer to note for full project description).	\$151,340.91

Project	Location	Start	Finish	Originating Round	Project description	Contracted amount (GST Excl)
Threat abatement for nationally threatened Middleback mallee species	South Australia	1-Jul-2012	30-Aug-2013	Caring for Our Country BP 1213	Feral foxes, cats and goats present a serious threat to nationally threatened malleefowl, sandhill dunnart, chalky wattle and yellow swainsona pea in the Middleback Alliance region of Eyre Peninsula. Building from a successful project in 2009-10 this project will refine optimal techniques for controlling pests over 500 000 ha of private, public and NRS land. Radio tracked Judas goats will be used to improve the efficacy of goat control and allied control work undertaken by neighbouring land owners. Automated poisoning devices, targeted trapping, hunting and baiting will be used to control foxes and cats. Results will be assessed by measuring the response of both pests and threatened species and the levels of volunteer participation achieved.	\$78,000.00
Vertebrate pests surveys and management plan for the Crocodile Islands	Northern Territory	1-Jul-2011	29-Aug-2013	Caring for Our Country Community Action Grants 1112	The Crocodile Islands have enormous potential for biodiversity conservation due to their physical separation from the mainland. The absence of cane toads and cats provides particular conservation security for Merten's water monitor and yellow-spotted monitor, and for many sites of national significance for a range of migratory and seabirds. This is a start-up project for the future management of cane toads and feral cats on all 27 Islands. These pests have been reported on Milingimbi Island, and may reach the outer islands including Murrungga. A survey of vertebrate pests is required to establish a management plan. Indigenous Ranger training, as well as community involvement, will maximise the success of a long-term management plan.	\$19,450.00