

model code of practice for the humane control of feral cats

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Introduction

The aim of this code of practice is to provide information and recommendations to vertebrate pest managers responsible for the control of feral cats. It includes advice on how to choose the most humane, target specific, cost effective and efficacious technique for reducing the negative impact of feral cats.

This code of practice (COP) is a guide only; it does not replace or override the legislation that applies in the relevant State or Territory jurisdiction. The COP should only be used subject to the applicable legal requirements (including OH&S) operating in the relevant jurisdiction.

Background

There is a growing expectation that animal suffering associated with pest management be minimised. This should occur regardless of the status given to a particular pest species or the extent of damage or impact created by that pest. While the ecological and economic rationales for the control of pests such as the feral cat are frequently documented, little attention has been paid to the development of an ethical framework in which these pests are controlled. An ethical approach to pest control includes the recognition of and attention to the welfare of all animals affected directly or indirectly by control programs. Ensuring such approaches are uniformly applied as management practices requires the development of agreed Standard Operating Procedures (SOPs) for pest animal control. These SOPs are written in a way that describes the procedures involved for each control technique as applied to each of the major pest animal species. While SOPs address animal welfare issues applicable to each technique, a Code of Practice (COP) is also required that bring together these procedures into a document which also specifies humane control strategies and their implementation. COPs encompass all aspects of controlling a pest animal species. This includes aspects of best practice principles, relevant biological information, guidance on choosing the most humane and appropriate control technique and how to most effectively implement management programs.

This code is based on current knowledge and experience in the area of feral cat control and will be revised as required to take into account advances in knowledge and development of new control techniques and strategies.

Definitions and Terms

Pest animal – any native or introduced, wild or feral, non-human species of animal that is currently troublesome locally, or over a wide area, to one or more persons, either by being a health hazard, a general nuisance, or by destroying food, fibre, or natural resources (Koehler, 1964).

Welfare – an animals' state as regards its attempts to cope with its environment (Broom, 1999). Welfare includes the extent of any difficulty in coping or any failure to cope; it is a characteristic of an individual at a particular time and can range from very good to very poor. Pain and suffering are important aspects of poor welfare, whereas good welfare is present when the nutritional, environmental, health, behavioural and mental needs of animals are met. When welfare is good suffering is absent (Littin et al., 2004).

Humane – causing the minimum pain, suffering and distress possible. To be humane is to show consideration, empathy and sympathy for an animal, an avoidance of (unnecessary) stress, and the demonstration of compassion and tenderness towards our fellow creatures (Australian Veterinary Association, 1997).

Humane Vertebrate Pest Animal Control – the development and selection of feasible control programs and techniques that avoid or minimise pain, suffering and distress to target and non-target animals (RSPCA, 2004).

Best Practice Management – a structured and consistent approach to the management of vertebrate pests in an attempt to achieve enduring and cost-effective outcomes. 'Best practice' is defined as the best practice agreed at a particular time following consideration of scientific information and accumulated experience (Braysher, 1993).

Best Practice Pest Management

From an animal welfare perspective, it is highly desirable that pest control programs affect a minimum number of individuals and that effort is sustained so that pest densities always remain at a low level. Over the last decade, the approach to managing pest animals has changed. Rather than focussing on killing as many pests as possible, it is now realised that like most other aspects of agriculture or nature conservation, pest management needs to be carefully planned and coordinated. Pest animal control is just one aspect of an integrated approach to the management of production and natural resource systems. Most pests are highly mobile and can readily replace those that are killed in control programs. Unless actions are well planned and coordinated across an area, individual control programs are unlikely to have a lasting effect. When planning pest management, there are some important steps that should be considered (after Braysher & Saunders, 2002).

1. What is the trigger to undertake pest animal management? Is there a community or political pressure for action on pests and an expectation that pest animals should be controlled? Pest control is unlikely to be effective unless there is strong local or political will to take action and commit the necessary resources.
2. Who is the key group to take responsibility for bringing together those individuals and groups that have a key interest in dealing with the pest issue?

3. What is the problem? In the past the pest was usually seen as the problem. Hence the solution was to kill as many pests as possible. We now know that the situation is more complex. First, determine what is the problem. It may be reduced lambing percentage, fence damage, reduced crop yields, complaints from neighbours or emotional stress from worrying about the next attack. Several factors impact on each of these problems and control of pests are often only part of the solution. The following questions then help define the problem:
 - Who has the problem?
 - Where is the problem?
 - How severe is the problem?
 - Will the problem change with time?
4. Identify and describe the area of concern. Sometimes it helps to remove agency and property boundaries so that the problem can be viewed without the tendency to point blame at individuals; groups or agencies. Property and agency boundaries can be added later once agreement is reached on the best approach.
5. Trying to deal with the complexity of a very large area can be daunting so it often helps to break the area into smaller management units for planning. These smaller units may be determined by water bodies, mountain ranges, fences, vegetation that is unsuitable for a particular pest or other suitable boundaries that managers can work to. While it is best to work to boundaries that restrict the movement of pests, this may not be practicable and jurisdictional boundaries, for example, the border of a Landcare group, may have to be used in combination with physical boundaries. Once the management units are identified:
 - Identify as best you can, the pest animal distribution and abundance in each management unit.
 - Estimate as far as is practicable, the damage caused by the pest or pests to production and to conservation.
6. Gather and assess other relevant planning documents such as Catchment Management Plans, Recovery Plans for threatened species and Property Management Plans. Identify any key constraints that may prevent the plan being put into operation and identify all the key stakeholders.
7. Develop the most appropriate pest management plans for each of the management units.

Implementing effective and humane pest control programs requires a basic understanding of the ecology and biology of the targeted pest species and in some cases those species affected directly (non-targets) or indirectly (prey species) by a control program. It is also essential to understand the impact created by the pest i.e. what is the problem? Managers should take the time to make themselves aware of such information by reading the recommended texts at the end of this code of practice. A brief summary follows. This information is extracted from the Threat Abatement Plan for Predation by Feral Cats by the Biodiversity Group, Environment Australia (1999) and from a fact sheet titled “The Feral Cat (*Felis catus*)” by the Natural Heritage Trust, Department of Environment and Heritage (2004).

Feral Cat Facts

Cats have been in Australia at least since European settlement, and may have arrived with Dutch shipwrecks in the 17th century. By the 1850s, feral cat colonies had become established in the wild. Intentional releases were made in the late 1800s in the hope that cats would control rabbits, rats and mice.

Feral cats are now found in most habitats on the mainland, Tasmania and many offshore islands, although not in the wettest rainforests.

For management purposes, cats are divided into three categories — domestic, stray and feral — although individual cats may move between categories. Domestic cats are owned and cared for, and stray cats are those found roaming cities, towns and some rural holdings. Feral cats, which survive without any human contact or assistance, are the main target of control programs.

Feral cats are solitary and predominantly nocturnal, spending most of the day in the safety of a shelter such as a burrow, log or rock pile. Rabbits have aided their spread by providing food and burrows for shelter. Males can occupy a home range of ten square kilometres but this may be even larger if food supplies are scarce. Females have much smaller territories.

Feral cats are carnivores and can survive with limited access to water, as they use moisture from their prey. They generally eat small mammals, but also catch birds, reptiles, amphibians, fish and insects, taking prey up to the size of a brush-tail possum. In pastoral regions, they feed largely on young rabbits, but in other areas feral cats prey mainly on native animals.

From the age of about one year, feral cats can breed in any season. They have up to two litters of about four kittens each year, but few of the young survive.

Dingos and foxes may restrict feral cat numbers by both direct predation and competition. Feral cats also fall prey to wedge-tailed eagles.

Feral Cat Impact

There is clear evidence that feral cats have had a heavy impact on island fauna. On Macquarie Island, for example, feral cats caused the extinction of a subspecies of the red-fronted parakeet. On the mainland, they have probably contributed to the extinction of many small to medium sized mammals and ground-nesting birds in the arid zone, and seriously affected bilby, mala and numbat populations. In some instances, feral cats have directly threatened the success of recovery programs for endangered species.

Feral cats carry infectious diseases such as toxoplasmosis and sarcosporidiosis, which can be transmitted to native animals, domestic livestock and humans. They could also carry rabies if it were to be accidentally introduced into Australia, although unlike dogs, they cannot maintain an independent cycle of the disease.

Feral Cat Control Strategies

Feral cats have been eradicated from a number of offshore islands using conventional control techniques, but their management on the mainland has proved to be more difficult. The current methods used to control feral cats are labour intensive, as feral cats can be quite trap shy, do not take baits readily and generally avoid human contact, making them difficult to shoot. Even if an area is treated, it is quickly recolonised by either the offspring of feral populations, or by recruits from urban areas.

Exclusion fencing has proved to be the most effective current control technique for feral cats. Unfortunately, the high cost of fencing makes this technique useful only for small areas of land. The fences also need regular maintenance to stop cats getting through into the enclosure.

There are two main approaches that can be taken, with current techniques, to reduce feral cat damage. The first is to use conventional methods to eradicate or suppress feral cats in manageable areas of high conservation value and to eradicate them from small islands. The second approach is preventative—ensuring that feral cats do not become established on islands of high conservation value where they do not presently occur. As a strategy, local eradication of feral cats is applicable only to small islands or small mainland sites that are surrounded by predator exclusion fences. Local eradication is a viable option only for areas which meet strict criteria:

- the chances of reinvasion must be nil or very close to it;
- all animals must be accessible and at risk during the control operation; and
- animals must be killed at a rate higher than their ability to replace losses through breeding.

Maintaining an area free from feral cats requires a sustained control operation to prevent reinvasion from surrounding areas. Buffer zones may be a necessary component of managing small areas, to reduce the threat from continual reinvasion from surrounding areas replacing cats killed during control operations. Development of such buffer zones will require the active participation of surrounding land managers and a clear identification of the benefits to be obtained by all participants. Significant benefits can be obtained through cooperative implementation of plans across different land tenures.

Where local eradication is not possible there are two broad strategies which can be used for localised management. These are: sustained management, where control is implemented on a continuing regular basis; and intermittent management, which seeks to apply control at critical periods of the year when damage is greatest and short term control will reduce impacts to acceptable levels. Sustained control is generally necessary for protecting habitats of endangered species or reintroduction sites. Intermittent control may be effective as a temporary seasonal measure to protect areas such as nesting or resting sites of migratory bird species. It may also be useful when transient feral cats are moving into an area where threatened species have been reintroduced, during periods of drought, prey shortage, disease or other stress when the feral cat population is vulnerable and likely to crash.

To maximise effect and use of resources, feral cat control programs need to be coordinated with other activities that may be taking place, including the on-ground protection of threatened plants and animals and control of other invasive species such as rabbits and foxes.

There are three essential requirements for a pest control technique – necessity, effectiveness and humaneness. The best strategy is to develop a plan which maximizes the effect of control operations and reduces the need to cull large numbers of animals on a regular basis.

Developing a feral cat management plan

This involves:

- *Defining management objectives.* Objectives are a statement of what is to be achieved, defined in terms of desired outcomes, usually conservation or economic benefits. Objectives should state what will be achieved (reduced impact) where, by when and by whom.
- *Selecting management options.* The management option is selected that will most effectively and efficiently meet the management objectives. The options include: eradication, containment, sustained management, targeted management, one-off action and taking no action.
- *Set the management strategy.* This defines the actions that will be undertaken: who will do what, when, how and where. It describes how the selected pest management options and techniques will be integrated and implemented to achieve the management objectives.
- *Monitoring the success of the program against the stated objectives.* Monitoring has two components, *operational monitoring* – what was done when and at what cost:- this determines the efficiency of the program, and *performance monitoring*:- were the objectives of the plan achieved and if not why not, that is the effectiveness of the program.

Choosing control techniques

Feral cat control techniques have the potential to cause animals to suffer. To minimise this suffering the most humane technique useable in any given situation must be employed. This will be the technique that causes the least amount of pain and suffering to the target animal with the least harm or risk to non-target animals, people and the environment. The technique must also be effective in the situation where it will be used (e.g. cage traps will have little effect in large areas where cats are at low densities). It is also important to remember that the humaneness of a technique is highly dependant on whether or not it is correctly employed. In selecting techniques it is therefore important to consider whether sufficient resources are available to fully implement that technique.

Feral Cat Control Techniques

The most commonly used feral cat control techniques are shooting, trapping, lethal baiting and exclusion fencing. The currently available methods of control are generally expensive, labour intensive, require continuing management effort and can be effective only in limited areas.

Researchers are attempting to improve the effectiveness and humaneness of baits and traps in controlling feral cats. In various parts of Australia, researchers are also studying the impact of feral cats on native wildlife, so that they can target control measures more effectively and assess how well they have worked. A brief evaluation of the humaneness of current control techniques follows:

Humaneness of current control techniques

Exclusion fencing

The use of exclusion fencing is generally regarded as a humane, non-lethal alternative to lethal control methods. However, the high costs of establishing and maintaining feral cat-proof enclosures, would limit their use to the management of highly valued threatened or endangered species. Exclusion fencing, combined with eradication inside the fences, has proved to be effective for protecting endangered species that are being reintroduced. For example, fences are now used to exclude feral cats and other predators from bilby colonies in Queensland. Fencing must be adequately maintained and monitored to stop cats breaching the enclosure. If breached, fences actually increase the risk of vulnerability of endangered species by preventing their escape from the predator.

Exclusion fencing can have negative effects on non-target species by altering dispersion and foraging patterns, and causing entanglement and electrocution. It can also create a significant hazard to wildlife in the event of a bushfire.

Lethal baiting

Lethal baiting of feral cats currently appears to be reasonably ineffective and is not widely used. This is because feral cats are often found in low densities and can have large home ranges. Also, they are naturally wary and are disinclined to feed on carrion except when food is scarce.

Sodium monofluoroacetate (1080) is the only poison currently used for feral cat control in Australia. In cats, poisoning from 1080 is typified by severe central nervous system disturbance, hyperexcitability, convulsions and ultimately respiratory failure, or occasionally, ventricular fibrillation. It is thought that during the initial onset of signs (e.g. incoordination, salivation, vomiting, retching, incontinence and hyperpnea); the animal is likely to be conscious and capable of suffering. However, during the latter stages, when the animal shows signs of central nervous system disturbance including collapse, convulsions and tetanic spasms, suffering may not occur.

Non-target animals including native species, dogs and livestock can also be exposed to poisons either directly by eating baits intended for pest animals (primary poisoning) or through the scavenging of tissues from a poisoned animal (secondary poisoning).

Shooting

Shooting can be a humane method of destroying feral cats when it is carried out by experienced, skilled and responsible shooters; the animal can be clearly seen and is within range; and the correct firearm, ammunition and shot placement is used.

Wounded cats must be located and dispatched as quickly and humanely as possible.

If lactating females are shot, efforts should be made to find dependent kittens and kill them quickly and humanely.

Trapping

All traps have the potential to cause injury and some degree of suffering and distress so should only be used when no practical alternative exists. Traps that contain an animal (e.g. cage or box traps) cause fewer injuries than traps that restrain an animal (e.g. leg-hold traps). Animals caught in a cage trap are not likely to experience significant injuries unless they make frantic attempts to escape. Importantly, non-target animals that are caught in cage trap can usually be released unharmed. Leg-hold traps on the other hand can cause serious injuries to both target and non-target animals such as

swelling and lacerations to the foot from pressure of the trap jaws and dislocation of a limb if the animal struggles to escape. If leg-hold traps are to be used they must have a rubber-like padding on each jaw which cushions the initial impact and provides friction thus preventing the captured animals from sliding along or out of the jaws. Steel-jawed traps should not be used as they cause significant injury, pain and distress. They are currently illegal in most states. Treadle snares are also a humane alternative to the steel-jawed trap but they are difficult to set and need to be checked at regular intervals (at least every 4–8 hours) to prevent severe tissue damage and fractures.

As well as injuries, trapped animals can suffer from exposure, thirst, starvation, shock, capture myopathy and predation; therefore traps must be placed in a suitable area protected from extremes of weather and inspected at least once daily. Traps should not be set where there is a risk of entanglement with fences or thick vegetation as this can also cause injury to the cat. Trapped animals must be approached carefully and quietly to minimise panic, further stress and risk of injury. Feral cats must be destroyed as quickly and humanely as possible with a single rifle shot to the brain. If lactating females are caught in a trap, efforts should be made to find dependent kittens and kill them quickly and humanely. Non-target animals that are caught but not severely injured should be released at the trap site. If they are injured, but may respond to veterinary treatment, such treatment should be sought. Severely injured non-target animals should be destroyed quickly and humanely.

Table 1: Humaneness, Efficacy, Cost-effectiveness and Target Specificity of Feral Cat Control Methods

Control Technique	Acceptability of technique with regard to humaneness*	Efficacy	Cost-effectiveness	Target Specificity	Comments
Exclusion fencing	Acceptable	Limited	Expensive	Can be in certain situations	Useful for protection of threatened wildlife species and other valuable animals. Expensive, therefore impractical for broad scale application.
Baiting with 1080	Conditionally acceptable	Relatively ineffective	Cost-effective	There is a significant potential risk of poisoning non-target animals. This is because cat baits are smaller, softer and more moist than those used for other species. Also, the baits are not buried.	Successful baiting of feral cats is difficult as they do not take baits readily. Ingestion of 1080 can also kill non-target animals including native species, domestic cats, dogs and livestock. 1080 is toxic to humans; operators need to take precautions to safeguard against exposure.
Ground shooting	Acceptable	Limited effectiveness	Not cost-effective	Target specific	Labour intensive, best suited to smaller, isolated areas such as islands. May be effective if applied for an extended period.
Cage traps	Acceptable	Relatively ineffective	Not cost-effective	May catch non-target animals but they can usually be released unharmed	Labour intensive, therefore not suitable for broadscale control. May be useful in small areas where eradication is the objective and in semi-rural/urban areas for problem animals.
Soft net trap e.g. Eco-trap®	Acceptable	Relatively ineffective	Not cost-effective	May catch non-target animals but they can usually be released unharmed	Labour intensive, therefore not suitable for broadscale control. May be useful in small areas where eradication is the objective and in semi-rural/urban areas for problem animals.
Padded-jaw traps	Conditionally acceptable	Relatively ineffective	Not cost-effective	Risk of catching non-target animals	Labour intensive. May be useful for problem animals but are inefficient for general control. Effectiveness depends on skill of operator
Treadle snares	Conditionally acceptable	Relatively ineffective	Not cost-effective	Risk of catching non-target animals	Labour intensive. May be useful for problem animals but are inefficient for general control. Difficult to set. Need to be checked even more regularly than padded-jaw traps
Steel-jawed traps	Not acceptable			Risk of catching and causing severe injury and distress to non-target animals	Inhumane and should not be used Alternatives are available

* Acceptable methods are those that are humane when used correctly.

* Conditionally acceptable methods are those that, by the nature of the technique, may not be consistently humane. There may be a period of poor welfare before death.

* Methods that are not acceptable are considered to be inhumane. The welfare of the animal is very poor before death, often for a prolonged period.

Standard Operating Procedures

Standard operating procedures are currently available for the following feral cat control methods:

- Ground shooting of feral cats (CAT001)
- Trapping of feral cats using cage traps (CAT002)
- Trapping of feral cats using padded-jaw traps (CAT003)

Legislation

All those involved in pest animal control should familiarise themselves with relevant aspects of the appropriate Commonwealth and State or Territory legislation. The table below gives examples of some of the relevant legislation. This list is by no means exhaustive and is current at January, 2004.

Commonwealth	<i>Agricultural and Veterinary Chemicals Code Act 1994</i> <i>Wildlife Protection (Regulation of Exports and Imports) Act 1995</i> <i>Environment Protection and Biodiversity Conservation Act 1999</i> <i>National Parks and Wildlife Act 1975</i>
ACT	<i>Animal Welfare Act 1992</i> <i>Nature Conservation Act 1980</i> <i>Poisons Act 1933</i> <i>Pesticides Act 1989</i> <i>Animal Diseases Act 1993</i> <i>Prohibited Weapons Act 1996</i> <i>Environment Protection Act 1997</i> <i>Rabbit Destruction Act 1919</i>
New South Wales	<i>Prevention of Cruelty to Animals Act 1979</i> <i>Pesticides Act 1999</i> <i>Rural Lands Protection Act 1998</i> <i>National Parks and Wildlife Act 1974</i> <i>Game and Feral Animal Control Bill 2002</i> <i>Threatened Species Conservation Act 1995</i> <i>Wild Dog Destruction Act 1923</i>
Northern Territory	<i>Animal Welfare Act</i> <i>Territory Parks and Wildlife Conservation Act</i> <i>Poisons and Dangerous Drugs Act</i>
Queensland	<i>Animal Care and Protection Act 2001</i> <i>Health (Drugs and Poisons) Regulation 1996</i> <i>Land Protection (Pest and Stock Route Management) Act 2002</i> <i>Nature Conservation Act 1992</i>
South Australia	<i>Prevention of Cruelty to Animals Act 1985</i> <i>Animal and Plant Control (Agricultural Protection and Other Purposes) Act 1986</i> <i>Controlled Substances Act 1984</i> <i>National Parks and Wildlife Act 1972</i> <i>Dog Fence Act 1946</i>
Tasmania	<i>Animal Welfare Act 1993</i> <i>Vermin Control Act 2000</i> <i>Poisons Act 1971</i> <i>Agricultural And Veterinary Chemical (Control of Use) Act 1995</i> <i>National Parks and Wildlife Act 1970</i> <i>Police Offences Act 1935</i>
Victoria	<i>Prevention of Cruelty to Animals Act 1986</i> <i>Catchment and Land Protection Act 1994</i> <i>Agriculture and Veterinary Chemicals (Control of Use) Act 1992</i> <i>Catchment and Land Protection Act 1994</i> <i>Drugs, Poisons and Controlled Substances Act 1981</i> <i>Wildlife Act 1975</i> <i>Flora and Fauna Guarantee Act 1988</i> <i>National Parks Act 1975</i>
Western Australia	<i>Animal Welfare Act 2002</i> <i>Agriculture Protection Board Act 1950</i> <i>Agriculture and Related Resources Protection Act 1976</i> <i>Poisons Act 1964</i> <i>Wildlife Conservation Act 1950</i> <i>Biological Control Act 1986</i>
Other relevant legislation	Firearms Acts Occupational Health and Safety Acts Dangerous Goods or Substances Acts Dog Acts

Note: copies of the above legislation and relevant regulations may be obtained from Federal, State and Territory publishing services.

Further Information

Contact the relevant Commonwealth, State or Territory government agency from the following list of websites:

Commonwealth	Department of Environment and Heritage http://www.deh.gov.au/
ACT	Environment ACT http://www.environment.act.gov.au/
NSW	NSW Department of Primary Industries www.dpi.nsw.gov.au
NT	Parks & Wildlife Commission www.nt.gov.au/ipe/pwcnt/
QLD	Department of Natural Resources and Mines www.nrm.qld.gov.au
SA	Animal & Plant Control Commission http://sustainableresources.pir.sa.gov.au
TAS	Department of Primary Industries, Water & Environment www.dpiwe.tas.gov.au
VIC	Department of Primary Industries, Agriculture & Food www.dpi.vic.gov.au
WA	Agriculture WA www.agric.wa.gov.au

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