

model code of practice for the humane control of feral horses

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Introduction

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

This code of practice (COP) is a guide only; it does not replace or override the legislation that applies in the relevant jurisdiction. The COP should only be used subject to the applicable legal requirements (including OH&S) operating in the relevant State or Territory 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 horse are frequently documented, little attention has been paid to the development of an ethical justification as to how these pests are controlled. An ethical approach to pest control requires 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 which 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 which brings 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 horse 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 – means 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 – means 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 is met. When welfare is good suffering is absent (Littin et al., 2004).

Humane – means to cause the minimum pain, suffering and distress possible. To be humane is to show consideration 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 – means a structured and consistent approach to 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 publication *Managing Vertebrate Pests: Feral horses* by Dobbie et al. (1993) and also from a fact sheet titled 'Feral Horse (*Equus caballus*) and feral donkey (*Equus asinus*)' by the Natural Heritage Trust, Department of Environment and Heritage (2004).

Feral Horse Facts

Horses arrived with the First Fleet in 1788. Shipments of working farm horses followed, and the first record of horses either escaping into the bush or being abandoned was in 1804. Much of the country was initially grazed without fences, so escape was common. As machines gradually replaced horses in a range of tasks, many horses were released to join the already established feral herds.

Most of the estimated 300 000 feral horses occur in the extensive cattle production areas of the Northern Territory, Queensland and some parts of Western Australia and South Australia. Scattered populations are also found in New South Wales and Victoria.

Feral horses inhabit a variety of country: semiarid plains and rocky ranges, tropical grasslands and wetlands, temperate ranges, subalpine forests and small offshore islands. They prefer grassland and shrubland with plentiful water and pasture.

Feral horses form small social units of either a dominant stallion accompanying one to three mares and their offspring, or a bachelor group. The groups of mares, offspring and a stallion favour areas near permanent water and have loose home ranges, while bachelor groups range more widely. Home ranges can be up to 88 square kilometres in the central Australian ranges but are typically smaller.

Feral horses breed in spring to summer and have a gestation period of about 11 months. They can produce one foal every two years. They can produce one a year, but they typically produce 2 every 3 years.

Feral Horse Impact

Feral horses are serious environmental pests, causing erosion and damaging vegetation with their hard hoofs. They damage and foul waterholes, and introduce weeds through seeds carried in their dung, manes and tails. Feral horses may also compete for food and water with native animals.

In central Australia, feral horses overgraze large areas because they can travel up to 50 kilometres from water in search of food. This can force native wildlife from its favoured habitats. The impact of feral horses on native grasses, herbs, shrubs and drinkable water is most pronounced during drought. They can quickly degrade areas close to remote waterholes, which during a drought become refuges critical to the survival of many native animals and plants. Without these refuges, native plants and animals may become locally extinct.

Feral horses also have an impact on the productivity of farming land. They eat pasture grasses, destroy fences, and during a muster can cause cattle to scatter. They can carry exotic diseases such as equine influenza and African horse sickness, which are serious threats to domestic horses. They can also carry tick fever, which can infect domestic horses and cattle.

Feral Horse Control Strategies

Control of feral horses is a complex issue. While feral horses need to be managed for economic and environmental reasons, some landholders see them as a harvestable resource. Control is also required to reduce the significant suffering that feral horses endure during droughts. When water is sparse, many horses can die, mainly from

starvation, lack of water and eating toxic plants that they usually avoid. Old horses, juveniles and mares with young at foot are most vulnerable.

Horses have a high public profile; therefore management practices receive close scrutiny from a range of interested groups. Consequently, control strategies need to address a wide range of viewpoints. By necessity, any control effort must be sustained. 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 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 horse 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. aerial shooting will have little effect in forested areas). 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.

Cooperative control

It may not be economic for a property to be independent in equipment and labour for feral horse management. Group schemes and cooperative effort provide economies of scale and social benefits that encourage sustained effort. Cooperative control effort can also encourage financial support from governments.

Feral Horse Control Techniques

Control techniques with the widest practical application across Australia and greatest potential for effective of feral horses are trapping at water, mustering, aerial shooting and ground shooting. Other measures such as exclusion fencing, fertility control and immobilisation followed by lethal injection could be used, however these methods are not practical given that many horses live in the vast rangelands of central Australia.

Different techniques are best suited to particular situations depending on issues such as mob size and age structure, geography and season. Aerial culling by properly trained and accredited shooters using approved procedures is considered to be a humane way to reduce feral horse numbers over large areas. The process is quick and eliminates the stresses of mustering, yarding and transportation for slaughter.

In areas where herd retention or relocation is adopted, trapping, mustering or shooting may be needed to maintain a stable population. Fertility control may be a suitable control option in these situations, provided that the necessary drugs and delivery mechanisms can be developed.

Cost-effectiveness, humaneness and efficacy for each control technique are useful in deciding the most appropriate strategy. A brief evaluation of the humaneness of control techniques follows:

Humaneness of control techniques

Fertility control

Fertility control is seen as a preferred method of broad-scale feral horse control as it offers a potential humane and target specific alternative to lethal methods. However, hormones to control fertility are difficult to administer to large numbers of free-roaming horses and there is no long-acting or permanent drug presently available; therefore annual treatment would be required. Consequently, its application is not currently feasible for most Australian conditions where feral horse numbers are high and their domain extensive. Currently its main application is for limiting small, isolated populations where eradication is not the aim.

Exclusion fencing

The use of exclusion fencing is generally regarded as a humane, non-lethal alternative to lethal control methods. However, fencing of large areas is expensive to construct and maintain and is difficult in rugged terrain. Strategically placed fences can direct horses from areas where they are difficult to control, such as hill country, into areas where they are more easily controlled. They can also restrict access to sensitive areas, and exclude horses from some water points to concentrate them at others where they can be trapped. Unfortunately, in some situations where horses are denied access to their regular waterholes, they may not move on to an alternative water supply and can die of thirst. Therefore regular inspections are necessary so that any lingering horses can be shot or allowed to drink.

Exclusion fencing can also have negative effects on non-target species by restricting access to natural watering points, 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. The fences constructed to exclude feral horses should allow wildlife such as kangaroos and dingoes to go under the fence.

Immobilisation and lethal injection

With this method, a low-charge dart containing a tranquiliser is injected to immobilise approachable horses, which are then euthanased with an injection of barbiturate. Although this method is seen as more humane than most other lethal methods, it is very costly, labour intensive, requires veterinary supervision and is therefore unsuitable for broadscale control.

Mustering

Mustering will inevitably cause stress and anxiety in the horses and has the potential to cause serious injury. To minimise this impact, it is preferable to use coacher horses which calm the mob and results in less injury, exhaustion or separation of foals from mares.

To avoid heat stress, mustering should be carried out when conditions are cool or mild. Feral horses should be handled quietly without force to avoid panic and trampling. The tail end of the mob should set the pace rather than being forced to keep up with the leaders. Distances that the horses have to be mustered should be kept to a minimum e.g. by using portable yards.

Roping feral horses from horseback (brumby running) sometimes occurs in the Southern highlands of New South Wales and Victoria. However, the number of horses taken by this method is low compared to other control techniques which remove large numbers of horses quickly, such as aerial shooting. It can also result in injury to horses and separation of foals from mares.

Trapping

Trapping may not be as stressful and potentially dangerous as mustering is, given that the horses are not driven into the trap but go in quietly of their own accord. However, there is still the potential for welfare problems during the process of holding, handling and transferring the horses from the trap to a vehicle for transport.

To minimise the possibility of starvation and stress, all traps must be inspected at least once daily. Horses must be provided with water at all times and appropriate feed must be made available if captured horses are to be held more than 24 hours. More frequent checking may be necessary during extreme weather conditions. Traps should be constructed to provide horses with shade and shelter and should be large enough to avoid overcrowding.

Capture and handling should be avoided when females are foaling or have dependent young at foot. Foals that do not accompany their mother into the trap may be separated and die of starvation or if trapped can get trampled underfoot.

Horse traps can have a negative impact on native non-target species (especially macropods) by inadvertently trapping them and also by excluding them from water sources. This impact can be minimised by using a suitable yard design that incorporates fencing material and gates that allow wildlife to escape if trapped. Also, the fencing used to protect alternative water sources from horses when trapping should allow access to wildlife species.

Management of captured or mustered horses

Mustering, capture and handling increase stress in feral horses as they are not used to confinement or close contact with humans. Exposure to prolonged or excessive stress causes severe physiological effects and can result in the following conditions:

- Capture myopathy;

- Heat stress and dehydration;
- Acute lameness due to injury or damage to tendons, ligaments or bones;
- Fight injuries due to mixing unfamiliar groups or individuals;
- Bruising and injury caused by rough capture techniques and poorly designed handling techniques;
- Stress-induced infections, such as salmonellosis;
- Feeding disruption resulting in ill-thrift or colic; and
- Abortion in heavily pregnant females

The removal of trapped feral horses off-property for sale to abattoirs involves additional stress to animals, particularly when long distance travel is involved. Therefore, the more humane option may be to destroy the animals on the property where they are caught.

Shooting

Shooting is considered more humane than capture and removal as the animals are not subject to the stresses of mustering, yarding, and long-distance transportation.

Ground shooting

Shooting can be a humane method of destroying feral horses 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 animals must be located and killed as quickly and humanely as possible. If lactating mares are shot, efforts should be made to find dependent foals and kill them quickly and humanely. Ground shooting is not suited to rough country as wounded animals cannot be effectively pursued and would suffer unnecessarily.

Aerial shooting

Aerial shooting of feral horses from a helicopter can be a humane control method when it is carried out by highly skilled and experienced shooters and pilots; the correct firearm, ammunition and shot placement is used; and wounded animals are promptly located and killed. Shooting from a moving platform can significantly detract from the shooter's accuracy therefore helicopter shooting operations do not always result in a clean kill for all animals. Follow-up procedures are essential to ensure that all wounded animals are killed.

With aerial shooting, chest shots are preferred as the heart and lungs are the largest vital area and an accurate shot is more achievable particularly within the range of unusual angles encountered when shooting from above. Although death from a chest shot may be more certain, compared to an accurate head shot, a shot to the chest does not render the animal instantaneously insensible and time to death is slower.

Table 1: Humaneness, Efficacy, Cost-effectiveness and Target Specificity of Feral Horse 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	Expensive, therefore impractical for large scale application. Fencing can be effective for small, critical (economically or environmentally) areas, though the maintenance cost are high.
Fertility control	Acceptable	Not currently effective	Expensive	Target-specific	Not currently available. Not practical for large scale control.
Immobilisation and lethal injection	Acceptable	Not effective	Expensive	Target-specific	Not practical for large scale control.
Mustering	Conditionally acceptable	Effective	Cost-effective. Can be expensive if helicopters are used.	Target-specific	Efficient and cost-effective where horses are present in high densities, terrain is relatively flat and horse prices are high. Welfare concerns associated with capture and transport of horses. More costly than trapping.
Trapping	Conditionally acceptable	Effective	Cost-effective	Can have an impact on non-target species. Trapped non-target species must be removed as quickly as possible to avoid undue stress. Traps at natural water holes may restrict access by native species. Horse traps should be designed so that most wildlife can go through fences or under gates.	Most effective when conditions are dry and there are few waterholes around where horses can drink. Cost-efficient method of capture.

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

Control Technique	Acceptability of technique with regard to humaneness*	Efficacy	Cost-effectiveness	Target Specificity	Comments
Ground shooting	Conditionally acceptable	Not effective	Not cost-effective	Target-specific	Labour intensive, only suitable for smaller scale operations. Most useful during drought and where horses cannot be captured by trapping or mustering. Impractical in good seasons when there is lots of water around and in rugged country where large scale control is required.
Aerial Shooting	Conditionally acceptable	Effective	Relatively expensive. Can be cost-effective when horse density is high	Target-specific	Suitable for extensive areas and inaccessible country. Most effective way of achieving quick, large scale culling.

* 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 horse control methods:

- Ground shooting of feral horses (HOR001)
- Aerial shooting of feral horses (HOR002)
- Mustering of feral horses (HOR003)
- Trapping of feral horses (HOR004)

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>Firearms 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 14996</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	<i>Firearms Acts</i> <i>Occupational Health and Safety Acts</i> <i>Dangerous Goods or Substances Acts</i> <i>Dog Acts</i>

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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