

MODEL CODE OF PRACTICE FOR THE HUMANE CONTROL OF FERAL GOATS

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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 goats. It includes advice on how to choose the most humane, target specific, cost effective and efficacious technique for reducing the negative impact of feral goats.

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 goat 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 goat 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 killing – a killing where welfare of the animal is not poor just prior to the initiation of the killing procedure and the procedure itself results in insensibility to pain and distress within a few seconds. When carried out properly, the welfare is either not poor at any time or is poor for those few seconds only (Broom, 1999).

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.

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.

This information is extracted from the publication *Managing Vertebrate Pests: Feral Goats* by Parkes et al. (1996) and also from a fact sheet titled “The Feral Goat (*Capra hircus*)” by the Natural Heritage Trust, Department of Environment and Heritage (2004).

Feral Goat Facts

Goats arrived in Australia with the First Fleet in 1788. As they were small and hardy, ate a range of plants and provided milk and meat, they were convenient livestock for early European settlers. During the 19th century, sailors released goats onto islands and some areas of the mainland for emergency food. Certain breeds were imported for their hair. More recently, goats have been used to keep plantation forests and inland

pastoral land free of weeds. Feral herds developed as these domestic goats escaped, were abandoned or were deliberately released.

Feral goats now occur in all Australian states and on many offshore islands, but are most common in the rocky or hilly semi-arid areas of western New South Wales, South Australia, Western Australia and Queensland. In 1996, there were an estimated 2.6 million feral goats in Australia.

Where dingoes and wild dogs are present, feral goats generally do poorly. However, they are often found in sheep-grazing areas, where dingoes and wild dogs have been removed or heavily controlled by pastoralists.

Feral goats live in herds, and although males and females live separately for much of the year they share a home range of about one square kilometre under good conditions, but a larger area when food or water is scarce. The two groups only mix together during the breeding season in autumn and winter, with females becoming sexually mature in their first year. Feral goats can breed twice a year, with twins and triplets being common.

Feral goats are generalist herbivores and have a varied diet - leaves, twigs, bark, flowers, fruit and roots. They will eat most plant types in pastoral regions and often consume vegetation that is avoided by sheep or cattle.

Feral Goat Impact

Feral goats have a major effect on native vegetation through soil damage and overgrazing of native herbs, grasses, shrubs and trees, which can cause erosion and prevent regeneration. Particularly in the rangelands, they compete with domestic livestock for food. Such competition can become severe when food is limited during drought. They foul waterholes, and can spread weeds through seeds carried in their dung.

Feral goats can also compete with native animals for food, water and shelter. For example, they may threaten some yellow-footed rock wallaby populations by competing for rock shelters and food, leaving the wallabies exposed to a greater risk of predation by foxes and wedge-tailed eagles.

Feral goats carry footrot, and it is difficult to cure sheep of this disease when there is reinfection through contact with feral goat populations. They could also carry exotic diseases such as foot-and-mouth disease, should there be an outbreak in Australia.

Feral Goat Control Strategies

Control of feral goats is a complex issue. While they are a major environmental and agricultural pest, they are seen by some to have commercial value, and are also used as a game species by recreational hunters. Feral goat populations tend to recover well from culling and, except on islands, eradication is usually impossible. To protect the environment, control is best focused on areas that contain threatened native plants, animals and communities.

Managers have five options in relation to feral goat damage:

- *Local eradication.* The permanent removal of all pests from a defined area in a set time.
- *Strategic management.* This is necessary where local eradication is not an achievable option, but where it is clear that pest damage will require continuing management. Strategic management is indicated where it is decided to reduce and sustain pest density, and pest damage, to a low level.
- *Commercial management.* A significant but highly variable proportion of goats can be mustered and removed for sale. The strategic outcome of mustering depends on whether it is seen as a commercial end in itself or as a first step in the strategic management of feral goats as pests.
- *Crisis management.* All too often managers undertake feral goat control only when populations are large enough to be causing obvious economic or environmental damage. There is no clear objective and feral goat numbers rapidly increase to pre-control levels due to immigration and natural increase, with considerable waste of resources and little lasting benefit.
- *No management.* The consequences of not harvesting or managing feral goats for most habitats are assumed to be harmful, given the perception that present densities in harvested populations still damage production or environmental resources.

There are many ways of managing goats, but the challenge is to combine them in an integrated strategy to achieve the desired resource impact outcome. Ideally, strategies should be based on reliable, quantitative information about the damage caused by goats, the cost of control and the effect of implementing control on damage levels.

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 goat 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 goat control techniques have the potential to cause animals to suffer. To minimize 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. ground shooting will have little effect in a rangeland setting). 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

Cooperative action is recognised as essential in pest management for many reasons. As with many other animal pests, feral goats can be mobile with large home ranges in arid areas. Group schemes allow better management of pests that easily cross tenure boundaries by providing for broad-scale, synchronised actions to minimise reinfestation problems. Economies of scale are inherent if joint action is taken by landowners, and groups also facilitate peer pressure on those unconvinced of the need for management.

Feral Goat Control Techniques

The most commonly used feral goat control techniques are mustering, trapping at water, aerial shooting, ground shooting and exclusion fencing. 'Judas' goats fitted with radio collars are sometimes used to help locate difficult to find groups of goats during control or eradication programs. Other measures such as poisoning with 1080 have been trialed but are not registered for use in Australia due to a number of reasons including the significant risk of poisoning non-target species.

Mustering and trapping are used in cases where goats are intended for commercial slaughter. But mustering and trapping become uneconomic once populations are reduced to densities of about one goat per square kilometre. Management of these low density herds, those in rough or densely vegetated areas, or of remnant or colonising herds, relies on lethal techniques such as aerial or ground shooting, or trapping and on-site slaughter. The use of Judas goats can improve the efficiency of some of these latter control techniques.

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

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 eventually breached by feral goats. Fences can be of limited use in feral goat control by restricting access to sensitive areas, and excluding goats from some water points to concentrate them at others where they can be trapped. They have also been used to break up large areas into manageable blocks during eradication

programs. Exclusion fencing can 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.

Use of Judas goats

Capture, handling and restraint of goats for use as Judas animals can cause anxiety and sometimes pain or injury if they struggle to escape. Repeatedly being isolated and having to find other goats may cause fear and anxiety as goats are highly social animals. Tracking and the nearby shooting of cohorts may also be another source of distress.

The lightest collar/transmitter available should always be used (< 5% of the body weight of the animal). The collar must be properly fitted for the comfort and safety of the animal. It should fit snugly enough to prevent it from coming off or chafing the neck, but it must also be sufficiently loose as to be comfortable and not interfere with swallowing or panting. Efforts should be made to reduce the possibility of the collar getting caught up in vegetation.

Shooting

Ground shooting

Shooting can be a humane method of destroying feral goats when it is carried out by experienced, skilled and responsible shooters; the animal can be clearly seen and is within range; and with the use of correct firearm, ammunition and shot placement. Wounded animals must be located and killed as quickly and humanely as possible. If lactating females are shot, efforts should be made to find dependent kids and kill them quickly and humanely.

Aerial shooting

Aerial shooting of feral goats 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.

Trapping at water

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

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

Goat traps can have a significant negative impact on native non-target species (especially macropods) by inadvertently trapping them and also by excluding them from water sources.

Mustering

To avoid heat stress, mustering should be carried out when conditions are cool or mild. Feral goats 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 goats have to be mustered should be kept to a minimum e.g. by using portable yards.

It is a more humane option for the goats to be destroyed in the yard after capture than have to endure further handling, transportation (often over long distances especially with live export) and domestication, to which some animals do not readily adjust.

Management of captured or mustered goats

Mustering, capture and handling increase stress in feral goats as they are not used to confinement or close contact with humans. Consequently, these procedures can result in mismothering, feeding disruption, social disruption, heat stress and also abortion in heavily pregnant females. Metabolic, nutritional and parasitic diseases and also changes in environmental conditions are common causes of mortality and morbidity in confined feral goats, especially when confined for long periods.

The removal of trapped feral goats off-property for either sale to abattoirs, live export, or for domestication, involves additional stress to animals. Therefore the most humane option is to destroy goats on the property where they are caught.

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

Control Technique	Acceptability of technique with regard to humaneness*	Efficacy	Cost-effectiveness	Target Specificity	Comments
Exclusion fencing	Acceptable	Effective in suitable areas	Expensive	Can impact on non-target species by restricting movement or denying access to water sources.	Expensive, therefore impractical for large scale application. Fences will not permanently stop the movement of all goats and should only be used as a tactical technique in a management program.
Aerial shooting	Conditionally acceptable	Effective	Relatively expensive. Can be cost-effective when goat density is high	Target specific	Used for control at both high and low densities especially in rugged or inaccessible terrain. Effective for eradicating small numbers of goats remaining after the use of other control methods. Useful for achieving broad scale reductions when goat prices are low.
Ground shooting	Conditionally acceptable	Not effective	Not cost-effective	Target specific	Labour intensive, only suitable for smaller scale operations. Has variable efficiency dependent upon climatic conditions. Can be cost-effective when densities are high. However, if goat prices are good then it may be more cost effective to trap/muster and sell the goats rather than shoot them.
Use of Judas goats	Conditionally acceptable	Effective	Relatively cost effective compared with searching for goats from helicopters or on foot	Target specific	Can be a useful adjunct to other control methods. Effective if local eradication is the aim. Requires expensive equipment and skilled operators

Model Code of Practice for the Humane Control of Feral Goats

Control Technique	Acceptability of technique with regard to humaneness*	Efficacy	Cost-effectiveness	Target Specificity	Comments
Trapping at water	Conditionally acceptable	Effective	Cost-effective	Can have a significant impact on non-target animals, especially macropods and emus. Trapped non-target species must be removed as quickly as possible to avoid undue stress. Traps at natural water holes may severely restrict access by native species.	Most effective during dry times. Cost-efficient when prices for goats are high
Mustering	Conditionally acceptable	Effective	Cost-effective	Target specific	Efficient and cost-effective where goats are present in high densities, the terrain is relatively flat and goat prices are high. Welfare concerns associated with capture and transport of goats.

*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 goat control methods:

- Ground shooting of feral goats (GOA001)
- Aerial shooting of feral goats (GOA002)
- Mustering of feral goats (GOA003)
- Trapping of feral goats (GOA004)
- Use of Judas goats to locate feral goats (GOA005)

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>Environment Protection and Biodiversity Conservation Act 1999</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 Act 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>

	<p><i>Controlled Substances Act 1984</i> <i>National Parks and Wildlife Act 1972</i> <i>Dog Fence Act 1946</i></p>
Tasmania	<p><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></p>
Victoria	<p><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></p>
Western Australia	<p><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></p>
Other relevant legislation	<p>Firearms Acts Occupational Health and Safety Acts Dangerous Goods or Substances Acts Dog Acts Civil Aviation Acts</p>

Note: copies of the above legislation and relevant regulations may be obtained from Commonwealth, 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 Agriculture www.agric.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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References

- Anon. (2004). The feral goat (*Capra hircus*). Natural Heritage Trust, Department of the Environment and Heritage, Canberra.
- Australian Veterinary Association. (1997). Animal Welfare. In: J Cornwall (ed.) Member's Directory and Policy Compendium, Veritage Press, Lisarow, NSW.
- Braysher, M. (1993). *Managing Vertebrate Pests: Principals and Strategies*. Bureau of Resource Sciences, Canberra.
- Braysher, M. and Saunders, G. (2002). Best practice pest animal management. *NSW Department of Agriculture Advisory Note DAI 279*
- Broom, D.M. (1999). The welfare of vertebrate pests in relation to their management. In: Cowand DP & Feare CJ (eds.). *Advances in vertebrate pest management*. Filander Verlag, Fürth. pp 309-329.
- Environment Australia (1999). Threat Abatement Plan for Competition and Land Degradation by Feral Goats. Biodiversity Group, Environment Australia, Canberra.
- Koehler, J. W. (1962). Opening remarks. Proceedings of the 2nd Vertebrate Pest Control Conference. March 4 and 5, 1964, Anaheim, California.
- Litten, K. E., Mellor, D. J., Warburton, B., and Eason, C. T (2004). Animal welfare and ethical issues relevant to the humane control of vertebrate pests. *New Zealand Veterinary Journal*. **52**, 1-10.
- NCCAW (2004). The Australian Animal Welfare Strategy. National Consultative Committee on Animal Welfare, Primary Industries Ministerial Council. Document available electronically from the Australian Government Department of Agriculture, Fisheries and Forestry website: <http://www.affa.gov.au/content/output.cfm?ObjectID=3C9C4ACE-B85B-465C-9C508C771F08C87E>
- Parkes, J., Henzell, R. and Pickles, G. (1996) *Managing Vertebrate Pests: Feral Goats*. Bureau of Resource Sciences and Australian Nature Conservation Agency. Australian Government Publishing Service, Canberra.