

GOA001 GROUND SHOOTING OF FERAL GOATS

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Background

Feral goats (*Capra hircus*) can have a significant impact on the environment and agricultural production and are a potential reservoir and vector of endemic and exotic diseases. Although often considered a pest, feral goats are also an important resource, harvested commercially, primarily for meat. Control methods include trapping, mustering, exclusion fencing, ground shooting and shooting from helicopters. Radio-collared 'Judas' goats are sometimes used to locate groups of feral goats. Refer to *GOA005 Use of Judas goats*.

Ground shooting of feral goats is undertaken by government vertebrate pest control officers, landholders and professional or experienced amateur shooters. It is best suited to accessible areas with high feral goat populations. Shooting from a helicopter is a more effective method of quickly reducing feral goat populations. Refer to *GOA002 Aerial shooting of feral goats*.

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, the correct firearm, ammunition and shot placement is used.

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

Application

- Shooting should only be used in a strategic manner as part of a co-ordinated program designed to achieve sustained effective control.
- Ground shooting is mainly used in forested areas and in open pastoral areas, often as a follow-up after initial reduction of goat numbers by mustering or aerial shooting.
- It is time-consuming and labour intensive, often with low efficiency especially during moist climatic conditions. Therefore, it is not commonly used as a control technique.
- It is most effective during dry periods when goats are congregating around water holes. Effectiveness becomes very limited when animals have dispersed after rain and/or the number of goats becomes low.
- Ground shooting is not suitable in inaccessible or rough terrain where sighting of target animals and accurate shooting is difficult or when wounded animals cannot easily be followed up and killed.

- The use of radio-collared Judas goats to locate feral herds increases the effectiveness of ground shooting control operations.
- Trained dogs are sometimes used to detect, herd or flush out feral goats prior to shooting. It is unacceptable to set a dog onto a goat with the intention of bringing it down, holding or attacking it.
- Shooting of feral goats should only be performed by skilled operators who have the necessary experience with firearms and who hold the appropriate licences and accreditation.
- Storage and transportation of firearms and ammunition must comply with relevant legislative requirements.

Animal Welfare Considerations

Impact on target animals

- Humaneness of shooting as a control technique depends almost entirely on the skill and judgement of the shooter. If properly carried out, it is one of the most humane methods of destroying feral goats. On the other hand, if inexpertly carried out, shooting can result in wounding which may cause considerable pain and suffering.
- Shooting must be conducted in a manner which aims to cause immediate insensibility and painless death. The appropriate firearms and ammunition must always be used.
- Shooters should not shoot at an animal unless it is clearly visible and they are confident of killing it with a single shot.
- Head (brain) or chest (heart-lung) shots must be used. Shooting at other parts of the body is unacceptable.
- The shooter must be certain that each animal is dead before another is targeted.
- Wounded goats must be located and killed as quickly and humanely as possible with a second shot preferably directed to the head. If left, wounded animals can suffer from the disabling effects of the injury, from sickness due to infection of the wound, and from pain created by the wound.
- If lactating females are shot, efforts should be made to find dependent kids and kill them quickly and humanely.
- If dogs are used to flush feral goats out from heavily forested areas, they must be adequately controlled to prevent them from attacking goats. In the event that a dog fastens onto a goat, the dog must be restrained and the goat immediately killed by shooting.

Impact on non-target animals

- Shooting is relatively target specific and does not usually impact on other species. However, there is a risk of injuring or killing non-target animals, including livestock, if shots are taken only at movement, colour, shape, or sound. Only shoot at the target animal once it has been positively identified. Also, never shoot over the top of hills or ridges as other animals or people may be out of sight beyond the hill in the danger zone.
- Shooting should be used with caution around lambing paddocks as it may disturb the lambing flock and cause mismothering. Also avoid paddocks containing

sensitive livestock eg. horses, deer. They are easily frightened by spotlights and gunshots and may injure themselves by running into fences and other obstacles.

Health and Safety Considerations

- Care must be taken when handling goats as they may carry diseases such as Q fever and scabby mouth (orf) that can affect humans and other animals. Routinely wash hands after handling goats or carcasses.
- Operators working with goats and goat carcasses are at risk of contracting Q fever. They may become infected when they inhale droplets of urine, milk, faeces or birth products from infected animals. Infection may also occur from inhalation of aerosols created during slaughter of infected animals or dust from contaminated materials. Blood testing of personnel is recommended to assess previous exposure, followed by vaccination for susceptible individuals
- Firearms are potentially hazardous. All people should stand well behind the shooter when an animal is being shot. The line of fire must be chosen to prevent accidents or injury from stray bullets or ricochets.
- Firearm users must strictly observe all relevant safety guidelines relating to firearm ownership, possession and use.
- Firearms must be securely stored in a compartment that meets state legal requirements. Ammunition must be stored in a locked container separate from firearms.
- Adequate hearing protection should be worn by the shooter and others in the immediate vicinity of the shooter. Repeated exposure to firearm noise can cause irreversible hearing damage.
- Safety glasses are recommended to protect eyes from gases, metal fragments and other particles.

Equipment Required

Firearms and ammunition

- Large calibre, high powered rifles (at least equal to .243 performance), fitted with a telescopic sight are recommended. Hollow-point or soft-nosed (minimum 80 grain) ammunition should be used. Smaller calibres (.222 or .223) with 70 grain ammunition may be adequate in skilled hands for smaller animals (<40 kg).
- 12-gauge shotguns with heavy shot sizes of SG or SSG, may be effective, but only up to a distance of 20 metres from the target animal.
- The accuracy and precision of firearms should be tested against inanimate targets prior to the commencement of any shooting operation.

Other equipment:

- First Aid kit
- Lockable firearm box
- Lockable ammunition box
- Personal protective equipment

Procedures

- The best time to shoot feral goats is when they are most active i.e. in the early morning and late afternoon.
- The objective is to fire over the closest range practicable in order to reduce the risk of non-lethal wounding. Accuracy with a single shot is important to achieve an immediate and, therefore, humane death.
- A feral goat should only be shot at when:
 - It can be clearly seen and recognised;
 - It is within the effective range of the firearm and ammunition being used; and
 - A humane kill is probable. If in doubt, do NOT shoot.
- The shooter must aim either at the head, to destroy the major centres at the back of the brain near the spinal cord or, at the chest, to destroy the heart, lungs and great blood vessels. This can be achieved by one of the following methods (*see diagrams in Appendix*):

Head Shot

The horn structures on adult goats make the temporal (side-on) or rear head shots the preferred points of aim. Shots to the front of the head can be used on kids, however this method is not recommended for mature goats as the brain is located well back in the skull.

Temporal position (side view)

The firearm is aimed from the side of the head so that the bullet enters the skull at a point midway between the eye and the base of the ear on the same side of the head. The bullet should be directed horizontally into the skull.

Rear of the head

The firearm should be aimed at the back of the head at a point between the base of the horns and directed towards the mouth.

Chest Shot

Front view

The firearm is aimed horizontally at the point midway between the forelegs and immediately below the base of the throat. Frontal shots should only be used for animals in the 'head high' position.

Side view

The firearm is aimed horizontally at the centre of a line encircling the minimum girth of the animal's chest, immediately behind the forelegs. The shot should be taken slightly to the rear of the shoulder blade (scapula). This angle is taken because the scapula provides partial protection of the heart from a direct side-on shot.

- When using a rifle, the target animal must be stationary and within a range that permits accurate placement of the shot. Shots to the head are preferred over chest shots.
- When using a shotgun, the target animal may be stationary or mobile, but must be no more than 20 metres from the shooter. The pattern of shot should be centred on the head or chest. It is essential that the distance to the target animal

is accurately judged. To achieve adequate penetration of shot, the animal must be in range. It is recommended that shooters practice estimating distances before a shooting operation.

- Shoot the dominant and mature animals first or, the leading animals if goats are escaping.
- The target animal should be checked to ensure it is dead before moving on to the next animal. Death of shot animals should always be confirmed by observing the following:
 - Absence of rhythmic, respiratory movements;
 - Absence of eye protection reflex (corneal reflex) or 'blink';
 - A fixed, glazed expression in the eyes; and
 - Loss of colour in mucous membranes (become mottled and pale without refill after pressure is applied).

If death cannot be verified, a second shot to the head should be taken immediately.

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 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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<http://www.deh.gov.au/biodiversity/threatened/tap/goats/index.html#contents>
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Recommended shot placements - Feral goat

Diagram 1

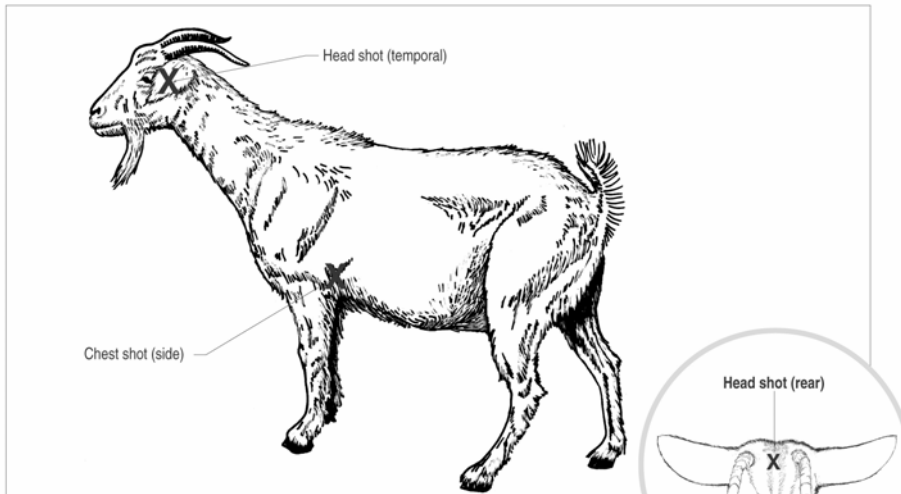


Diagram 2 - Side view (skeleton)

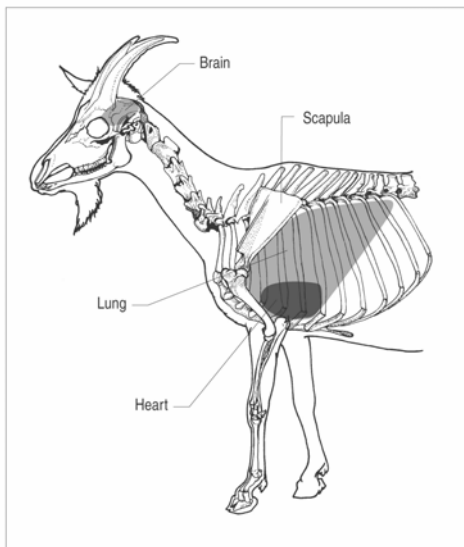


Diagram 3 - Head shot (rear)

