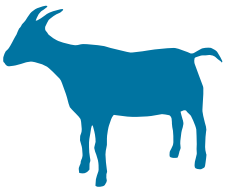


NSWGOAT SOP4
Trapping of feral goats

Background

Feral goats are often trapped by landholders and this involves the use of self-mustering technology that was originally developed for the management of sheep and cattle in rangeland areas. Trapping involves the construction of goat-proof fences around water points with a number of one-way gates or ramps. The gates/ramps allow goats to enter the trap and have access to water but prevent them leaving. Once trapped, the goats are usually sold for live export, to abattoirs for slaughter or less commonly for domestication, which offsets the costs of capture. Where there is no market for them or where removal might be costly or impractical (e.g., in conservation areas or remote areas without access to transportation), the goats are usually destroyed by shooting in the trap yard.

This standard operating procedure (SOP) is a guide only. It does not replace or override the relevant NSW or federal legislation. The SOP should only be used subject to the applicable legal requirements (including WHS) operating in NSW.

Individual SOPs should be read in conjunction with the overarching Code of Practice for that species to help ensure that the most appropriate control techniques are selected and that they are deployed in a strategic way, usually in combination with other control techniques, to achieve rapid and sustained reduction of pest animal populations and impacts.

Application

- Trapping should only be used in a strategic manner as part of a coordinated program.
- Trapping is mainly used in semi-arid and arid rangelands where there are no alternative watering points for goats.
- Although traps can be expensive to establish, trapping is more cost-effective than mustering and is also less stressful for the goats. Trapping is the preferred method of control when goats are at low densities.
- Trapping is most effective during dry periods, when goats drink regularly and congregate around water holes. It becomes less effective and sometimes impractical during periods of wet weather when water is plentiful, and goats are dispersed.
- Trapping at water can have significant negative impacts on non-target species, especially macropods and emus.
- Maintaining traps is time consuming. Therefore, it is only suitable to use traps in situations where the operator has time to check them on a regular basis.

- Traps can also be used as self-mustering yards for domestic stock such as sheep and cattle.
- Operators should try to keep stress on the goats to a minimum during capture and handling. Prolonged stress not only has a negative impact on an animal's welfare but can also decrease carcass and meat quality.
- Shooting of goats should only be done 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 legislation requirements.

Animal welfare implications

Target animals

- Capture and handling increase stress in feral goats, as they are not exposed to being confined or in close contact with humans. Because of this, these procedures can result in mismothering, feeding disruption, social disruption, heat stress and abortion in heavily pregnant females. Metabolic, nutritional and parasitic diseases and also sudden changes in environmental conditions are common causes of mortality and morbidity in confined feral goats.
- There should be sufficient yards to avoid mixing different or unfamiliar groups of stock as this can result in fighting, stress and/or injury.
- Traps should be:
  - large enough to avoid overcrowding and allow all goats to access the water point
  - constructed to include trees, other vegetation and logs (located away from the edge of the fence line) to provide goats with shade and shelter. Goats can suffer when exposed to extremes of heat and cold
  - constructed in a way so that it will not cause injury from loose wire, sharp edges or malfunctioning gates. The trap gates should be large enough to allow big animals and those with large horns to enter the trap. The trap yard should be large enough so that each goat has enough space to avoid social stress.
- Feral goats should be handled quietly without force, to avoid panic and trampling.
- To avoid heat stress, mustering should be done in the cooler months.
- Capture and handling should be avoided when female goats are kidding or have dependent young at foot. Kids that do not accompany their mother into the trap can be separated and die of starvation or, if trapped, can get trampled underfoot. Although feral goats have been observed to breed at all times of the year, generally, spring is the time of year when there is a greater proportion of does in late pregnancy or with young kids at foot.
- To minimise the possibility of starvation and stress, all traps must be inspected at least once each day. More frequent checking might be necessary during extreme weather conditions.

- The supply of water should be checked daily and appropriate feed must be made available if captured goats are to be held for more than 24 hours. Account must be taken of their possible unwillingness to drink and eat from troughs. Animals being held for any length of time must be checked daily for ill thrift and signs of injury and disease.
- Fencing off alternative watering points to force goats to water at the trapped points has welfare implications. Some animals might not leave their preferred water source and will die of thirst rather than move and search for another.
- Goats that are found severely injured inside the trap must be killed quickly and humanely with a rifle shot to the head.
- Electric prods can only be used on animals that are over 6 months of age and must not be used on pregnant animals.
- Only trained working dogs are to be used to assist in the handling of feral goats. Trained sheep dogs such as kelpies are preferred, as they are not usually aggressive. As a precaution, muzzles can be fitted to dogs to prevent them causing bite injuries.
- Only fit and healthy animals should be selected for transport. Heavily pregnant, very young or weak/sick/injured animals must either be destroyed, given proper veterinary assistance or be transported at a later date when they are more suitable for transportation.
- The loading, transport, unloading, holding and slaughter of feral goats must be done with the minimum amount of stress, pain or suffering. Guidelines on these procedures can be found in relevant state or federal government guidelines. For example:
  - *Australian Industry Welfare Standards and Guidelines for Goats*
  - *Australian Animal Welfare Standards and Guidelines — Land Transport of Livestock*
  - *Australian Standards for the Export of Livestock*

Non-target animals

- Goat traps can have a significant negative impact on native species, such as macropods, by inadvertently trapping them and by excluding them from water sources. For example, traps that are closed from dusk to dawn will exclude macropods from drinking at a time when they mostly seek water. Macropods may be reluctant to enter a trap but will remain around the perimeter rather than moving on to another water source. Those that do enter will become trapped and may rush at fences or become caught and injure themselves while trying to escape. Injuries and stress can also be caused when trying to release trapped animals through the gates.
- Traps that would exclude large numbers of native species from natural springs and waterholes should not be constructed.
- If a trap continually catches numerous non-target animals, it should be constructed at another site where it will have minimal effect on other species, or another goat control method could be used.
- A barrier can be used on the external mesh fence to prevent kangaroos from getting their hind legs caught if they attempt to jump over. Chicken wire, rubber belting or shade cloth placed on the top 20 cm of the mesh acts as both a physical and visual barrier. The fence should be no more than 1.2 m high (preferably 90 cm).

- Small escape gates can be incorporated at intervals around the fence to allow macropods to escape under the fence.
- A protected water source could be provided nearby that would allow access to wildlife species, but not to stock and feral goats.
- Traps could be activated only during the day when goats and stock tend to water. This will help to avoid capture of macropods, which tend to water at night.
- Moving macropods out of a trap should be done during the coolest part of the day to prevent them from overheating. Females should be closely monitored to see if they drop their pouch young. Macropods are very susceptible to capture myopathy, so they should be moved gently and quietly out of the yard through the trap gate before any other work is done in the vicinity of the trap.
- Trapped native non-target animals and livestock that are still watering at the trapping point will need to be drafted from the trapped goats on a daily basis.
- To reduce the risk of injury to livestock, it is preferable to plan trapping sessions for times when livestock are out of the paddock (e.g., during shearing, lambing/calving, spelling). Trapping should be avoided during lambing/ calving, as ewes and cows can become separated from their young when they enter the trap for a drink.
- Non-target animals caught in traps must be examined for injuries and signs of illness or distress and dealt with as follows:
    - Animals that are unharmed or have only received minimal injuries such as minor cuts or abrasions should be immediately released at the site of capture.
    - Animals with more severe injuries or that are suffering from thermal stress should receive appropriate attention. An animal suffering from thermal stress can be placed in a suitable quiet holding area that provides warmth or shade to allow recovery before release. Animals with treatable injuries that cannot be immediately released, or those failing to recover from thermal stress, should be presented to a vet or a registered wildlife carer for treatment.
    - Animals with injuries that are untreatable or that would compromise their survival in the wild should be euthanased using a technique that is suitable for the species. For more information on euthanasia techniques, refer to *GEN001 Methods of Euthanasia*.

Workplace health and safety considerations

- Care must be taken when handling goats as they can carry diseases such as Q fever and scabby mouth (also known as 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 can become infected when they inhale droplets of urine, milk, faeces or birth products from infected animals. Infection can 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.

- During construction of traps, operators should be wary of the risks of injury from lifting heavy items. Leather gloves and eye protection will help prevent injuries from wire, steel posts and hammers.
- Firearms are 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.
- The shooter and others in the immediate vicinity should wear adequate hearing protection to prevent irreversible hearing damage, and safety glasses to protect eyes from gases, metal fragments and other particles.

Equipment required

Traps

Several trap designs exist, differing mainly in the one-way entrance. The three most commonly used traps are:

Jump-down traps

- The entrance consists of an earth ramp sloping up to approximately 1 m high that allows the goats to access the trap by jumping down into it. A heavy-gauge wire or baulking bar is placed approximately 30 cm above the top of the ramp to prevent the goats from jumping back out of the trap.
- The width of the ramp depends on the number of goats in the area.
- A gate is placed next to the ramp and this is left open when the traps are not in use, to encourage the goats to use the traps.
- Jump-down ramps are best suited to areas that are free of livestock. Cattle and sheep that are in poor condition, and also lambs can suffer injuries when jumping from the ramp into the trap.
- Timid and small animals can be reluctant to use the ramp.

Spear gate traps

- The entrance consists of a V-shaped, four-barred gate with flexible spears. Goats have to squeeze through the spears to enter the yard to drink.
- Goats must be trained to go through the gates by gradually closing the spears to get them used to squeezing through.
- Big billies and other goats with large horns can have difficulty squeezing through this type of gate.

Swinging one-way gate traps

- These gates allow the goats to push through one way into the yard, but do not move in the opposite direction when they push to get out.
- Trap yards should be large enough to comfortably handle the work they are expected to do.
- The most appropriate size will depend on the size of the water point, number and type of livestock using the water point, whether livestock and feral animals will be in the yard together and whether the animals will be held in the trap yard or drafted into holding yards.
- Large trap sizes give the goats enough room to move away from people entering the trap, allow for effective handling and will also reduce the pressure on (and therefore damage to) the fences.
- An adequate size to handle a large number of goats would be 50 x 50 m.
- It is preferable to incorporate loading pens and holding yards in the trap design that allow for onsite animal handling.
- The yard fencing must be strong enough to withstand the pressure of animals bumping into it. The most effective and economic fencing material used is ringlock or hingelock mesh.
- The most commonly used fence configuration is of prefabricated 8/90/15 hingelock with plain wires top and bottom to tie the hinged panels together (i.e., the fence is 90 cm high, has 8 horizontal wires and a gap of 15 cm between vertical wires).
- The fence can also be topped with one or two plain wires and a strip of shade cloth material to increase the height of the fence (to no greater than 1.2 m high).
- Self-mustering trap yards can be built as squares, triangles and rounded yards. Round yards provide advantages over the other designs, as the round shape provides the largest trap for material used, there are no corners to accumulate animals and the rounded shape aids in the flow of animals in and through the yard.
- Choice of trap design will depend on habitat, material available and accessibility to site.
- Knowledge of other species that might be at risk from inappropriately designed traps should be used to identify the most suitable trap designs and usage.
- Details of trap specifications and construction can be obtained from NSW state agriculture guidelines, for example:
  - *Cost Effective and Multipurpose Self-mustering Enclosures for Stock*
  - *Yard Design for Goats*
  - *Going into Goats: A practical guide to producing goats in the rangelands*
  - *Total Grazing Management Field Guide: Self-mustering Systems for Cattle, Sheep and Goats*
  - *Improving the development of effective and humane trapping systems…in Australia*

Firearms / ammunition and captive bolt guns

- Smaller calibre rifles such as .22 magnum rimfire with hollow/soft point ammunition are adequate for euthanasia of goats at short range (within 5 m). If shooting animals from a greater distance refer to *NSWGOAT SOP1 Ground shooting of feral goats* for more detailed information.
- Penetrating captive bolts guns (e.g., Cash Special .22, Blitz Kerner .38) are suitable for euthanasia of restrained goats when used by trained and confident operators. The cartridge power and length/diameter of bolt must be appropriate for the species and age of animal.
- Captive bolts should be regularly cleaned and maintained in optimal working condition according to the manufacturer's instructions. Cartridge blanks must be stored properly so that the propellant does not deteriorate.

Procedures

Selection of trap sites

- Construct the trap at a site where there are limited numbers of watering points that can be fenced off easily. The trap should be situated on animal trails coming into the water point so that the gates are encountered on the usual path to water — this will make it more likely the target species will quickly accept and continue to use it.
- If possible, choose a site that is in a shady area, with as much natural vegetation as possible.
- Monitor the use of other watering points so that they can be fenced off if necessary, to force goats to use the trap yard.
- Strategic placement is essential to reduce impact on local native species.

Setting the trap

- If goats are being removed from the property for live sale, suitable transport must be arranged and confirmed before trapping begins.
- Before setting the trap, an adequate training period (around three weeks) must be allowed so that the animals can become familiar with watering inside the trap yard. This period should be extended if any animals are showing difficulties in adapting.
- Once the goats are used to watering at the trap, the exit gate/s should be closed, and trapping can begin.
- The trap should be checked at least once daily to avoid stress to the goats and to remove any domestic stock or non-target animals. Once trapped, goats are usually drafted into separate holding yards with access to feed and water. It is preferable to activate the trap each morning and then check it in the evening.
- If bucks are fighting they should be drafted into separate yards.

- When checking the trap, always approach from the direction of the gate. This will prevent the goats being forced into the gate area of the trap where the fence is lowest and there is a chance they will escape.
- Traps can be left at permanent sites with the gates open and reactivated when further trapping is needed.

Holding goats in yards

- Captured goats should be allowed at least 3–4 days to rest with adequate shelter, food and water before they are transported on journeys longer than 8 hours. This will also allow them to become accustomed to lot feeding before transport to a feedlot or depot. During this time they must be assessed daily for signs of injury, disease, loss of appetite, illness or distress. Account must be taken of their possible unwillingness to drink and eat from troughs.
- Goats should not be held in the holding yards for extended periods. If goats are being held for any length of time (no longer than four days) they should be drafted into a large holding paddock that contains adequate shelter, food and water.
- Older males and goats with significant horns should be separated to avoid dominance behaviour and injury. Does and unweaned kids should be kept together.

Loading and transporting goats

Specific requirements for the land transport of goats can be found in *Australian Standards and Guidelines for the Welfare of Animals — Land Transport of Livestock*

Euthanasia of goats in the yards

- It might be necessary to humanely kill goats in the following situations:
  - when there is no market for the captured goats (including smaller animals that are of no commercial value)
  - if goats have sustained serious injury during capture or in the holding yards
  - if there are dependent young that are separated from their mother
  - if there is a pre-existing disease or condition that would prevent the animal from being transported, slaughtered or domesticated.
- When large numbers of animals are to be killed in the holding yard, provisions should be made to dispose of carcasses in an appropriate manner (i.e., by burying and/or burning). Numerous guidelines are available that describe disposal methods.

Shooting

- Shooting is the most acceptable method of euthanasia for goats and must be done to cause sudden and painless death with minimum distress to the animal. Only head shots are acceptable.
- The shooter should approach the animals in a calm and quiet manner. To prevent unnecessary agitation of the yarded goats, other people should keep away from the area until shooting is completed.

- To maximise the impact of the shot and to minimise the risk of misdirection, the range should be as short as possible.
- Never fire when the goat is moving its head. Be patient and wait until the goat is motionless before shooting. Accuracy is important to achieve a humane death. One shot should ensure instantaneous loss of consciousness and rapid death without resumption of consciousness.
- Shots must be aimed to destroy the major centres at the back of the brain near the spinal cord. The horn structures on adult goats make the rear (or poll) head shot the preferred point of aim. Shots to the front of the head can be used on kids but this method is not recommended for mature goats as the brain is located well back in the skull.
- Rear (or poll) shots are performed by aiming the firearm at the back of the head at a point between the base of the horns and directed towards the throat and mouth.
- To ensure maximum impact and the least possibility of misdirection, projectiles should be fired at the shortest range possible, but not with the barrel in contact with the animal's head.
- Death of shot animals can be confirmed by observing a combination of the following:
  - no heartbeat
  - no breathing
  - no corneal reflex (no blinking when the eyeball is touched)
  - no response to a painful stimulus (e.g., a pinch of the ear tip).
- If death cannot be verified, a second shot to the head should be taken immediately.

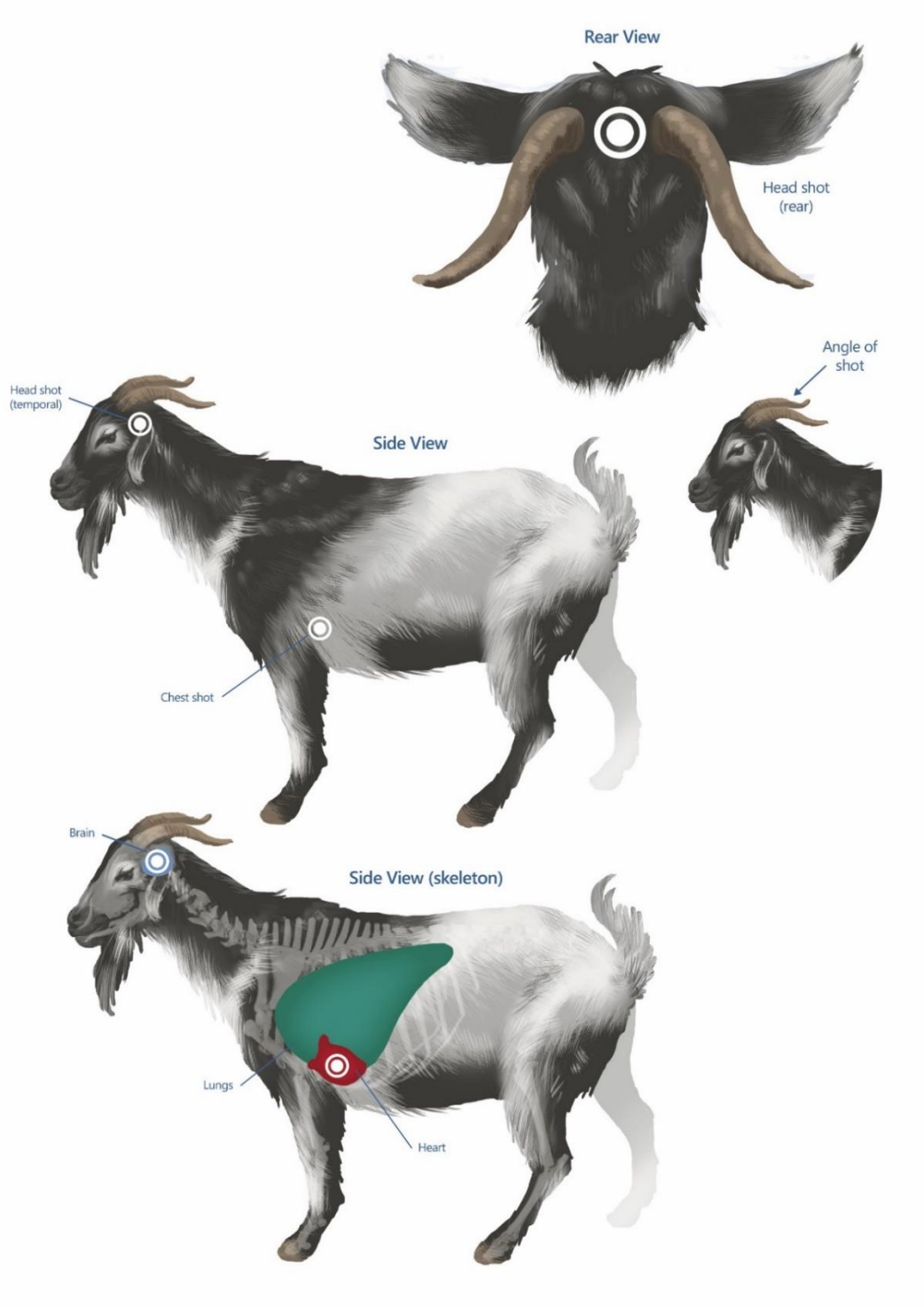
Captive bolt gun

- In some situations (e.g., where it is unsafe to use a firearm) it may be more appropriate to use a captive bolt gun for euthanasia of goats.
- Captive bolts cause insensibility by disrupting the cerebral cortex, with death occurring due to disruption to the brain stem.
- Captive bolts must only be used by suitably trained operators who can confidently handle and operate the device and know the correct anatomical landmarks on the head. They must also be able to confirm death, recognise ineffective shots and take quick action when a shot goes wrong.
- A penetrating captive bolt gun is recommended because it is more reliable at delivering an effective stun.
- The animal must be well-restrained and the captive bolt gun pressed firmly on the head in the *poll* position before being discharged. Frontal and crown shots must not be used.
- Captive bolt guns can only cause stunning, or loss of insensibility, that may be temporary and not lead to death. Stunning must therefore be followed by a secondary method to cause death, such as bleeding-out.

Euthanasia of neonatal dependent young

- In some situations (e.g., when it is unsafe to use a firearm) it will be necessary to use an alternative method for euthanasia of dependent young that can be caught by hand. Acceptable methods are:
  - A penetrating captive bolt gun as described above.
  - A percussive, non-penetrating captive bolt device (e.g., CASH Small Animal Tool with a 1 grain cartridge; propane-powered TED device) - is effective for achieving stun/kill of neonatal goats (up to 48 hours old) when applied to the skull on the midline between the ears with the chin tucked into the neck.

Figure 4: Shot placement for feral goats. Head shot (rear / poll) should be used for euthanasia at close range. See text for details.



Note that shooting an animal from above or below the horizontal level as depicted here will influence the direction of the bullet through the body. Adjustment to the point of aim on the external surface of the body may need to be made to ensure that the angled bullet path causes extensive (and therefore fatal) damage to the main organs in the target areas.

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