

# NATSOP-PIG003

# NATIONAL STANDARD OPERATING PROCEDURE: GROUND SHOOTING OF FERAL PIGS

Reference as:

Terrestrial Vertebrate Working Group (2024) NATSOP-PIG003 National Standard Operating Procedure: Ground Shooting for Feral Pigs. Australia.

Available for download at [pestsmart.org.au/toolkits/feral-pigs/](https://pestsmart.org.au/toolkits/feral-pigs/)

Associated documents (referred to as associated CoP and NATSOPs) relating to the NATSOP-PIG003 National Standard Operating Procedure: Ground Shooting for Feral Pigs include:

- National Code of Practice for the Effective and Humane Management of Feral Pigs
- NATSOP-PIG001 National Standard Operating Procedure: Trapping of Feral Pigs
- NATSOP-PIG002 National Standard Operating Procedure: Aerial Shooting of Feral Pigs
- NATSOP-PIG004 National Standard Operating Procedure: Poisoning of Feral Pigs with Sodium monofluoroacetate (1080)
- NATSOP-PIG005 National Standard Operating Procedure: Poisoning of Feral Pigs using PIGOUT 1080 Baits
- NATSOP-PIG006 National Standard Operating Procedure: Poisoning of Feral Pigs with HOGGONE® Sodium nitrite Baits

**This document outlines best practice guidelines for the effective and humane management of feral pigs in Australia.**

**The Code of Practice (CoP) outlines humane control strategies and their implementation while National Standard Operating Procedures (NATSOPs) describe control techniques, their application, and strategies to minimise any harmful impacts.**

**The national CoP and NATSOPs comprise model guidelines that set minimum animal welfare standards. They do not override CoPs and SOPs in jurisdictions where these documents have been developed, prior to or after the endorsement of these documents, to address specific management issues or to comply with relevant legislation. For example, the national-level CoP and NATSOP for the management of feral pigs are not relevant in New South Wales, which currently has both state-level CoP and SOPs in place (Sharp *et al.* 2022).**

This CoP along with associated NATSOPs will be reviewed by the Terrestrial Vertebrate Working Group (TVWG) within 12 months of when they were endorsed, to manage any potential risks to operations throughout the country.

Jurisdictions conducting operations for feral pig control are encouraged to submit reports to the TVWG secretariat for discussion at either the 12 monthly review, or sooner if there are urgent matters that need to be raised. The reports should include:

- whether the national CoP and NATSOPs were implemented in their jurisdiction
- whether the national CoP and NATSOPs were effective
- apparent mistakes or oversights in the national CoP and NATSOPs
- unintended consequences or adverse events that occurred when implementing the national CoP and NATSOPs
- new techniques or modifications to existing techniques as a result of research or registration.

These reports will form the basis of reviews by the TVWG.

### **Acknowledgements**

*This document is based on the original work by Sharp, Cope and Saunders titled 'NSW Code of Practice and Standard Operating Procedures for the Effective and Humane Management of Feral Pigs' published in 2022. Much of the text presented here is a direct reproduction of the original source. This version primarily involves minor edits and formatting changes to adapt the original material for a national audience.*

*The TVWG acknowledges the significant research conducted by Trudy Sharp, Holly Cope and Glen Saunders which forms the basis of this text and acknowledge that the intellectual property and creative credit for most of this content remain with them.*

*Guidance, input and reviews were provided by the multi-jurisdictional membership of the TVWG. Consultation and input were also provided by animal welfare NGOs, National Feral Pig Action Plan's Implementation Committee and Scientific Advisory Panel, Centre for Invasive Species Solutions, and operational and policy government staff.*

*Coordination was managed by the National Feral Pig Management Coordinator, Dr. Heather Channon.*

## BACKGROUND

Ground shooting of feral pigs is undertaken by government vertebrate pest control officers, landholders, professional shooters and accredited volunteer shooters. Although intensive ground shooting operations may reduce the local populations of feral pigs, it is rarely effective for damage control and is not suitable as a long-term control method. Shooting from a helicopter is considered a more humane control method, enabling all animals in a mob to be controlled as well as promptly follow-up and kill a wounded animal. It is also a more effective method of quickly reducing feral pig populations. Refer to [NATSOP-PIG002 National Standard Operating Procedure: Aerial shooting of feral pigs.](#)

Shooting can be a humane method of killing feral pigs when it is carried out by experienced, skilled shooters, the animal can be clearly seen and is within range, the correct firearm, ammunition and shot placement is used, and any wounded animals are promptly located and killed.

This National Standard Operating Procedure (NATSOP) is a guide only; it does not replace or override the relevant state and territory legislation. The NATSOP should only be used subject to the applicable legal requirements (including WHS) operating in the relevant jurisdiction.

Individual NATSOPs should be read in conjunction with the overarching Code of Practice for feral pigs 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 feral pig populations and impacts.

### Application

- Shooting should only be used in a strategic manner as part of a coordinated program designed to achieve sustained effective control.
- Ground shooting is often used as a secondary control method after initial reduction of high-density pig populations by aerial shooting and/or poisoning. It is time-consuming and labour intensive and therefore an inefficient method for large-scale feral pig control.
- Ground shooting should generally not be conducted prior to, or during any other control program e.g., trapping or poisoning, as it can disrupt normal feral pig activity and may cause temporary dispersal of pigs to other areas.
- Ground shooting is not suitable in inaccessible or rough terrain where sighting of target animals and accurate shooting is difficult or wounded animals cannot easily be followed up and killed.
- Trained dogs are sometimes used to detect, bail or flush out pigs prior to shooting. It is an offence to set a dog onto a feral pig with the intention of bringing it down, holding or attacking it.
- Shooting of feral pigs 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 implications

#### *Target animals*

- The 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 killing feral pigs.
- Shooting must be conducted in a manner that 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.

- When shooting an animal, it must be clearly visible and able to be killed with a single shot as it may be difficult to deliver follow-up shots, particularly in rough terrain. A solid rest or support should be utilised to ensure accurate shot placement.
- Only head (brain) or chest (heart-lung) shots must be used. A well-placed shot to the head to destroy the brain will result in instantaneous insensibility and a quicker death compared to a well-placed shot to the chest. Chest shots to destroy the heart can present challenges for accurate placement and may not always result in rapid death. For this reason, under ideal conditions, head shots are preferred over chest shots. However, in situations e.g., where close approach is not possible; the head is obstructed or cannot be targeted; the animal is already wounded; or a second 'follow-up' shot can be quickly taken), a chest shot may be the most suitable option as it is a larger target. Shooting at other parts of the body is unacceptable.
- Correctly placed head shots cause brain function to cease, and insensibility will be immediate. Death from a shot to the chest is due to massive tissue damage and haemorrhage from major blood vessels. Insensibility will occur sometime after, from a few seconds to a minute or more. If a shot stops the heart functioning, the animal will lose consciousness very rapidly.
- The shooter must be certain that each animal or defined group of animals is dead by physical inspection before another is targeted.
- Wounded pigs must be located and dispatched 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 sows are shot, reasonable efforts should be made to find dependent piglets and kill them quickly and humanely. Piglets that escape after a sow has been shot will usually return to the area within the next few hours.
- If dogs are used to bail or flush feral pigs out from vegetation, they must be adequately controlled to prevent them from attacking pigs.

#### *Non-target animals*

- Shooting is relatively target specific and does not usually impact on other species. However, there is always a risk of injuring or killing non-target animals, including livestock, if shots are taken at movement, colour, shape or sound. Only shoot at the target animal once it has been positively identified and never shoot over the top of hills or ridges.
- 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 e.g., horses and farmed deer. They are easily frightened by spotlights and gunshots and may injure themselves by running into fences and other obstacles.
- If using dogs to locate, bail or flush feral pigs out from vegetation, the following should be observed:
  - Dog handlers should be experienced, and the dogs well trained i.e., they should be easily controlled by a whistle or call, obey the handlers' commands and will not chase or attack non-target animals including livestock. Dogs that are deliberately bred or trained to attack without provocation must not be used.
  - Handlers must not encourage dogs to bring down or attack feral pigs. They should only be used to locate pigs, NOT to capture and hold them.
  - Chest, neck and body plates should be used on working dogs to prevent serious injuries which can be inflicted by feral pigs. If a dog is injured it

- must receive veterinary attention as soon as possible.
- Never shoot at a pig until the dog is out of the line of fire.
- Do not let the dog become fatigued as it is more likely to sustain injury.
- Where affordable, it is recommended that dogs wear a working radio collar so that they can be located quickly if lost. Lost dogs can suffer from dehydration, starvation and exposure and can have a negative impact on livestock and native fauna if they are left to run wild.
- For more details refer to NATSOP-GEN002 National Standard Operating Procedure: The safety and welfare of working dogs used in pest animal control.

## Workplace health and safety considerations

- Firearms are hazardous. All participants in the shooting program 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.
- Shooting from a vehicle is potentially dangerous. An agreed safety procedure between the shooter and others in the vehicle must be in place to ensure that people do not enter the field of fire or disturb the taking of a shot.
- 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.
- Care should be taken when handling pig carcasses as they may carry diseases such as leptospirosis, Q fever, Japanese encephalitis (JEV), brucellosis, sparganosis, melioidosis and tuberculosis that can affect humans and other animals. Routinely wash hands after handling all carcasses. Carcasses can be heavy (>100kg), so care should be taken when lifting/dragging.

## Equipment required

### *Firearms and ammunition*

- Medium - large calibre, high velocity centre-fire rifles fitted with a telescopic or red-dot sight should be used.
- Energy at the target and bullet construction are the most important factors when selecting firearms and ammunition to achieve humane shooting of animals. These requirements vary for different species, and size classes within species, depending on body size and composition. The recommended minimum firearm and ammunition requirements for the ground shooting of feral pigs are:
  - calibre: .243 inches
  - bullet weight: 80 grain
  - muzzle energy: 1819 (ft-lbs).
- Shooters must check ballistic charts for the specifications for the combination of firearm and ammunition they want to use. Examples of acceptable firearm and ammunition combinations with maximum shooting distances are included in the table below.

Cartridge	Bullet weight (gr)	Muzzle velocity (ft/sec)	Muzzle energy (ft-lbs)	Maximum distance (metres)
.243	80	3200	1819	200
25-06 Rem	90	3350	2243	200
.308 Win	150	2820	2649	200

Source: <https://press.hornady.com/assets/pctumbs/tmp/1410995911-2019-Standard-Ballistics-Chart.pdf>

- Rifle bullets must be of an expanding type designed to deform in a predictable manner e.g., hollow point, soft-point, polymer tip.
- 12-gauge shotguns with heavy shot sizes of SG or SSG and fitted with a suitable choke, may be effective, but only up to a distance of 20 metres from the target animal.
- The accuracy and precision of rifles should be tested against inanimate targets prior to the commencement of any shooting operation.

#### *Other equipment*

- If shooting at night, a handheld spotlight, or a helmet or headband mounted spotlight or vehicle mounted spotlight.
- Thermal/night vision spotter (binoculars or monocular) and scopes
- First aid kit
- Lockable firearm box
- Lockable ammunition box
- Personal protective equipment (hearing and eye protection)
- Communication devices (e.g., 2-way radios / mobile or satellite phones) are recommended for safety reasons.

#### **Procedures**

- Feral pigs must NOT be shot from a moving vehicle as this can significantly detract from the shooters' accuracy.
- It is recommended that during daylight hours shooters familiarise themselves with the shooting zone and the terrain they are to cover at night. Take note of potential hazards or risks and also any landmarks that may help with navigation.
- Be aware that the spotlight only illuminates a small portion of the danger zone and only a fraction of the projectile's range. If available, a thermal device could be used to assess the area any potential risks before a shot is fired.
- Ensure you are in a firm, safe and stable position before taking a shot.
- The best time to ground shoot feral pigs is when they are most active i.e., in the early morning, late evening and throughout the night if spotlights or thermal imaging devices are used.

#### *Target and shot placement*

- The objective is to fire at 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 pig 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
- a humane kill is highly probable
- If in doubt, do NOT shoot.
- Although pigs are comparatively large animals, the vital areas targeted for clean killing are small. Shooters should be adequately skilled e.g. be able to consistently shoot (using at least the minimum specified centrefire rifle) a group of 3 shots (from 3 attempts) within a 7.5cm target at 100 metres from a bench rest. Shooters should also be able to accurately judge distance, wind direction and speed and have a thorough knowledge of the firearm and ammunition being used. Testing should be conducted and overseen at an appropriate frequency to ensure shooters are both accurate and consistent.
- 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 also Figure 1). Figure 1 illustrates 'shot placement' rather than aim point. The actual aim point and angle will change depending on where the shooter is standing relative to the animal.

## Head Shots

### *Frontal position*

- This is the ideal site for shooting pigs. The firearm should be aimed at a point midway across the forehead and about 2cm above the level of the eyes. The bullet should be directed in the direction of the tail.

### *Temporal position*

- This shot is useful for older pigs and large boars that can have foreheads consisting of thick bones and a ridge that runs down the centre. 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.

### *Behind the ear*

- This shot is also used for older pigs and large boars that can have foreheads consisting of thick bones and a ridge that runs down the centre. The firearm is aimed at a point behind the ear directed towards the opposite eye.

## Chest Shots

### *Side view*

- The firearm is aimed 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 and humerus provide partial protection of the heart from a direct side-on 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. Adult males have a thickened cartilaginous shield under the skin which protects the shoulders and ribs during fighting. This shield may interfere with frontal chest shots; therefore, side chest shots are preferred.
- When using a rifle, the target animal must be stationary and within a range that permits accurate placement of the shot. Head shots and heart/lung shots are both acceptable ways to shoot feral pigs.
- When using a shotgun, the target animal may be stationary or mobile, but should 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.

- The target animal should be checked to ensure it is dead before moving on to the next animal. 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.

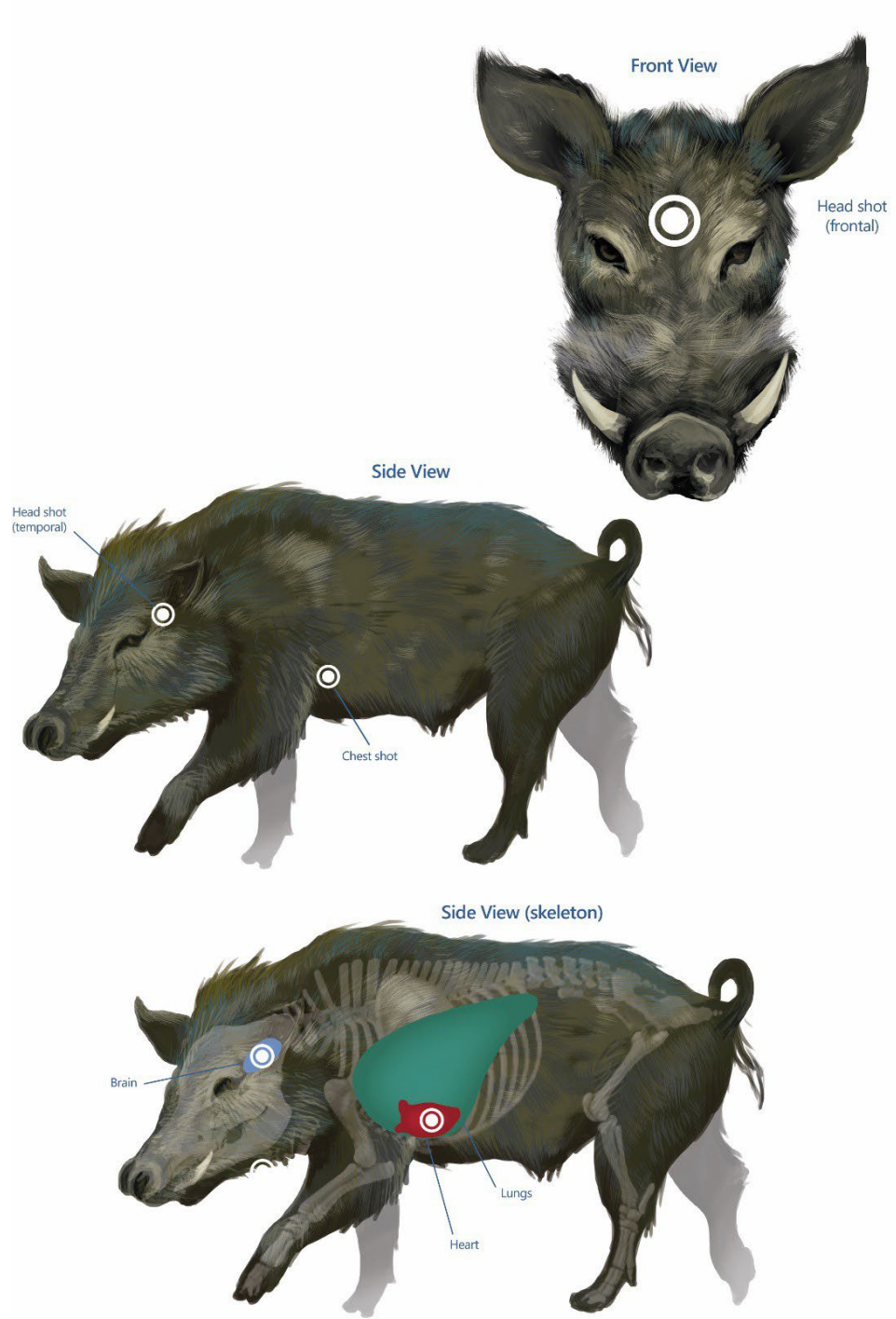
## Disposal of carcasses

Carcasses from pigs destroyed using ground shooting should be buried to minimise disease risks associated with using meat to attract other pigs.

For further information about disposal of carcasses in some states and territories refer to:

- NSW: [https://www.dpi.nsw.gov.au/data/assets/pdf\\_file/0003/1299603/animal-carcass-disposal.pdf](https://www.dpi.nsw.gov.au/data/assets/pdf_file/0003/1299603/animal-carcass-disposal.pdf)
- South Australia: [https://www.epa.sa.gov.au/files/7566\\_onfarm\\_disposal.pdf](https://www.epa.sa.gov.au/files/7566_onfarm_disposal.pdf)
- Victoria: <https://www.agriculture.vic.gov.au/biosecurity/pest-animals/invasive-animal-management/integrated-feral-pig-control>

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o **Figure 1: Shot placement for ground shooting of feral pigs**  
o *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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