CAPTURE OF FERAL DONKEYS DONKEYS (DON003) STANDARD OPERATING PROCEDURE

BACKGROUND

Feral donkeys (*Equus asinus)* can cause significant environmental and agricultural damage and are potential carriers of endemic and exotic diseases. Control methods include capture (by trapping, mustering or roping), exclusion fencing, ground shooting and aerial shooting from helicopters. Aerial shooting programs are often augmented by use of the 'Judas' technique to locate animals at low densities.

The Judas technique relies on a captured individual bearing a telemetry device guiding an aerial shooting team to the location of a large group of animals. This technique relies on the gregarious nature of the collared individual to locate otherwise cryptic groups of surviving animals. The capture of Judas animals requires chemical and/or physical restraint to permit the fitting of a telemetry collar, after which they must be released without physical disability or disruption to normal social behaviour.

For large, potentially dangerous species such as the donkey, chemical restraint via remote injection is a necessity for both animal and staff safety. Darts containing immobilising chemicals can be fired by a shooter from the ground if animals can be approached safely, but for highly mobile, flighty species such as the donkey, darts must be fired from a helicopter. Capture methods must be humane, rapid, repeatable, cost-effective and safe for staff. A combination of the sedative drugs medetomidine and ketamine is highly effective for immobilising donkeys whilst the sedative effects of these chemicals can be partially reversed by the antagonist drug atipamezole, allowing rapid recovery and release of captured animals.

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

- The Judas technique should only be used in a strategic manner as part of a co-ordinated aerial shooting program designed to achieve sustained effective control.
- The Judas technique is only a once donkey density has been reduced to low levels. At high density, unaugmented aerial shooting is the most cost-effective method.
- The optimal period for Judas operations is during dry seasons or droughts when many groups of donkeys are forced to congregate around remaining areas of water and feed.
- For safety reasons, darting from a helicopter cannot be undertaken in adverse weather conditions (e.g. strong wind, rain, low cloud).
- Darting of feral donkeys should only be performed by competent, trained personnel who have been tested and accredited for suitability to the task and marksmanship and who hold the appropriate licences (e.g. in WA shooters must possess Category D and E firearms accreditation).
- All non-veterinary staff required to use immobilising chemicals must be trained thoroughly in their safe and humane use by a veterinarian.
- Animal welfare standards must be strictly observed when capturing animals for use in Judas operations.

Reference me as: Trudy Sharp 2013. Capture of feral donkeys. Standard Operating Procedure. PestSmart website. https://pestsmart.org.au/toolkit-resource/aerial-shooting-of-feral-donkeys/

- Helicopter pilots must hold the appropriate licences and permits including approval from the Civil Aviation Safety Authority and be skilled and experienced in aerial shooting operations.
- Storage, use and transportation of firearms and ammunition must comply with relevant legislative requirements.
- Storage, use and transportation of veterinary chemicals must comply with relevant legislative requirements.
- Medetomidine, atipamezole and ketamine are restricted chemical products. Under the Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP), medetomidine and atipamezole are listed as Schedule 4 prescription only medicines, while ketamine is listed as a Schedule 8 controlled drug.
- Schedule 4 and Schedule 8 chemicals are subject to regulatory controls under State or Territory legislation and can only be obtained via a prescription from a registered veterinarian. See Appendix for relevant state departments.
- In some states, the handling and use of ketamine, as a Schedule 8 chemical, by non-veterinarians is allowed only with specific authorisation from the relevant state Veterinary Surgeon's Board.

ANIMAL WELFARE CONSIDERATIONS

Impact on target animals

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Impact on non-target animals

- Immobilisation of donkeys is very target specific and has minimum impact on other species.
- Sensitive livestock such as horses are easily frightened by gunshots and helicopter rotor noise and may injure themselves by running into fences and other obstacles. If feasible, avoid darting in areas where these livestock occur.

HEALTH AND SAFETY CONSIDERATIONS

- The potentially hazardous nature of aerial darting requires that safety protocols be strictly followed. Each team member must be aware of and trained in all aspects of helicopter, firearm and chemical safety.
- Darting from a helicopter can be hazardous particularly in areas of rugged topography. The combination of low-level flight, close proximity to obstacles and the use of firearms and dangerous chemicals make this task extremely hazardous.
- Donkeys are large, potentially dangerous animals. The risk of being seriously kicked by an uncoordinated sedated animal is high unless all staff position themselves safely.
- Firearm users must strictly observe all relevant safety guidelines relating to firearm ownership, possession and use.
- When not in use, firearms must be securely stored in a compartment that meets state legal requirements.
- When not in use, veterinary chemicals must be securely stored in a compartment that meets state legal requirements.

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- 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.

- Extreme care must be taken when handling veterinary drugs that can affect humans. Medetomidine and ketamine are potent sedatives in humans and selfinjection is extremely hazardous. To minimise selfinjection risks, veterinary chemicals are NEVER to be handled while inside the helicopter. All darts should be pre-prepared on the ground and loaded into the dart gun before boarding the helicopter.

- If veterinary chemicals come into contact with skin, immediately wash the area with soap and water.

- All used needles, syringes and darts should be placed into a 'sharp medical waste container' as soon as they have been used. Handling of needles and darts should be kept to a minimum.

- Care must be taken when handling feral donkeys as they may carry diseases such as melioidosis, ringworm and dermatophilosis that can affect humans and other animals. Routinely wash hands and other skin surfaces after handling animals.

EQUIPMENT REQUIRED

Helicopter

- Light, single-engine helicopters are preferred (e.g. Robinson 220, 440 etc.)
- GPS (global positioning systems) units should be used to allow accurate recording of animal locations.

Firearms and ammunition

- Dart guns powered by explosive charge should be used (e.g. Pneudart etc.). CO2 powered dart guns are not sufficiently powerful for helicopter darting.
- 6 mL darts should be used with 20 gauge, 11/2 inch barbed wire needles or similar.
- In case of animals requiring euthanasia, a standard aerial shooting firearm should be carried at all times. .308 calibre firearms are suitable.
- The accuracy and precision of all firearms should be tested against inanimate targets prior to the commencement of any shooting operation.

Chemicals

- Three veterinary drugs are required: medetomidine, ketamine and atipamezole (Table 1).
- Medetomidine and ketamine can both be attained at a variety of concentrations in solution from a number of manufacturers. Atipamezole, however, typically comes in 5 mg/mL concentration.
- All drugs must be kept in cool conditions out of direct sunlight.
- It is important to ensure that all drugs are within the expiry period specified by the manufacturer.
- Atipamezole should be administered using a 20 mL syringe and an 18 gauge, 11/4 inch needle or similar.

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Telemetry collars

- Radio collars should be light weight, durable, have long battery life and whip antennae. Detailed information and advice regarding size and suitability of collars can be obtained from retailers of radiotelemetry equipment.
- Radio transmitters should always be tested before and after attachment to the animal (before release) to ensure they are functioning correctly.

Other equipment

- Black cotton bag to be used as a blindfold
- Flight helmet (with intercom)
- Fire resistant flight suit
- Safety harness
- Other personal protective equipment including laceup boots, gloves and appropriate eye and hearing protection.
- Survival kit (including a first aid kit)
- Emergency locating beacon (EPIRB)
- Lockable firearm box
- Lockable ammunition box

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Table 1: Chemicals and dose rates for donkey immobilisation

name	Dose rate (mg/kg)	Total dose for 200-250kg donkey (mg)	Use	Time of administration	Route of injection
Medetomidine	0.14	30	Capture	At darting	Dart
Ketamine	4.0	800	Capture	At darting	Dart
Atipamezole	0.35	75	Recovery	20 min post-darting	Intra-muscular injection

PROCEDURES

- Two darts should be pre-loaded with mixed doses of medetomidine and ketamine sufficient to immobilise a 200-250 kg animal (see Table). The second dart should be corked and securely placed in a close plastic box. Pre-loading darts removes the need for staff to handle potentially dangerous needles while in the helicopter.
- An appropriate target animal must be identified. Ideal Judas donkeys are young non-pregnant adult females without dependant young, in the body weight range of 200-250 kg. Animals within this demographic maximise gregarious potential whilst minimising anaesthetic risk.
- Target donkeys should be mustered away from watercourses before being shot as recumbent animals will be difficult to locate if they go down in water.
- Once a target is sighted and has been positively identified, the pilot should position the helicopter as close as is safe to the target animal to permit the shooter the best opportunity for a clean shot.

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- The pilot should aim to provide a shooting platform that is as stable as possible. Shooting from a moving platform can significantly detract from the shooter's accuracy.
- A dart should only be fired at a target feral donkey when:
    - It can be clearly seen and recognised;
    - It is within the effective range of the firearm and dart being used; and
    - An accurate shot is probable. If in doubt, do NOT dart.
- The shooter should aim to place the dart in one of two sites of deep muscle, the muscles of the lateral neck (Site A in Diagram 1), or the hamstring muscles (Site B in Diagram 1).
- If a dart fails to hit the target region of the animal or becomes dislodged shortly after contact, an additional dart should be administered to ensure adequate immobilisation.
- The helicopter should move away to a distance of 150- 200 metres from the darted animal, whilst maintaining visual contact, for a period of ten minutes after darting. ALWAYS maintain visual contact with a darted animal.
- If necessary, the animal should be mustered away from rugged or inaccessible areas, towards an area that will more easily accommodate a helicopter landing.
- After ten minutes has elapsed, the helicopter should approach the animal while maintaining a distance of 50-100 metres. The helicopter should aim to land immediately after the animal becomes recumbent at a distance of at least 50 metres from the animal.
- If signs of sedation are absent after ten minutes has elapsed, an additional dart should be administered to ensure adequate immobilisation.
- The recumbent donkey should be approached on foot. Two people must be present when fitting a collar – one to restrain the animal and one to fit the collar.
- Always approach the recumbent animal ONLY from the dorsal (or spinal) side to prevent injury from kicking legs.
- To minimise visual stimulation, a blindfold should be placed over the animals eyes. One person should hold this cloth in place whilst placing gentle pressure on the donkeys' lateral neck.
- If the dart remains in the animals flesh, it should be removed with sharp traction at this point. The used dart should be safely stored in a plastic 'sharps' disposal container.
- The telemetry collar should be fitted quickly with a minimum of disruption to the animal. It is important not to place the collar so tight that it constricts the neck. A general guide is to be able to slip two fingers between the animals' neck and the collar.
- The collar should be highly visible so that the Judas animal can be easily visually distinguished from other donkeys in the herd.
- Remove magnet (battery stop) or turn on the collar if it is fitted with a magnetic switch and check transmitter frequency before releasing.
- Once the collar has been fitted and checked, the animal can be allowed to rest in recumbency. Atipamezole can be injected only after at least 20 minutes since the dart was placed. Atipamezole must be injected into the muscle of the lateral neck (Site A in Diagram in Appendix). The injection site should first be swabbed with a sterile wipe.
- When injecting into muscle, always pull back on the syringe to ensure blood does not come back into the hub of the syringe. If blood appears, replace the needle at an adjacent site.
- The cloth should be maintained over the animals' eyes until strong efforts are made to rise. All staff should step away from the animal quickly and quietly at this point. Always stay on the dorsal (spinal) side of the animal.

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- The following records should be kept for each animal darted:
  - The animals location (GPS coordinates)
  - The identification and radio frequency of the telemetry collar fitted
  - The size of the mob in which the target animal was found
  - The chemicals used
  - The dart/s used
  - Hours flown
  - Details of any fly-back procedures

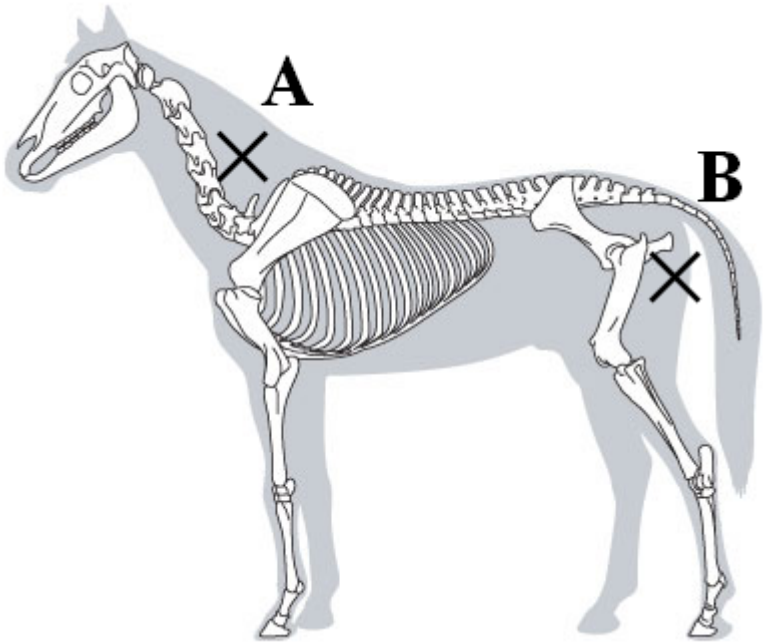

Diagram 1: Recommended sites for dart placement (A or B) and intramuscular injection (A) – Feral donkey

AERIAL SHOOTING OF FERAL DONKEYS

This document does not cover the aerial shooting of feral donkeys that follows capture in Judas operations. As a guide, refer to *DON002: Aerial shooting of feral donkeys*.

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REFERENCES

1. Dobbie WR, Berman DMcK and Braysher ML (1993) *Managing Vertebrate Pests: Feral Horses*. Australian Government Publishing Service, Canberra.
2. Gregory N. (2003). Assessing the humaneness of pest control methods. In: *Solutions for achieving humane vertebrate pest control*. Proceedings of the 2003 RSPCA Australia Scientific Seminar held at the Telstra Theatre, Australian War Memorial, Canberra 25 February, 2003. (Draft April, 2003). Royal Society for the Prevention of Cruelty to Animals Australia, Deakin West, ACT pp 65–84.
3. Longair JA, Finley GG, Laniel MA, MacKay C, Mould K, Olfert ED, Roswell H and Preston A. (1991). *Guidelines for euthanasia of domestic animals by firearms*. Canadian Veterinary Journal 32: 724–726.
4. Mawson P (1991). Ethics, animal welfare and operational guidelines for the humane shooting of pest animals. *Agriculture Protection Board of Western Australia Infonote 8/91 Agdex 670.*
5. Sharp T (2012). *Standard Operating Procedure (DON001): Ground shooting of feral donkeys*. Invasive Animals Cooperative Research Centre, Canberra.
6. Sharp T (2012). *Standard Operating Procedure (DON002): Aerial shooting of feral donkeys*. Invasive Animals Cooperative Research Centre, Canberra.

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