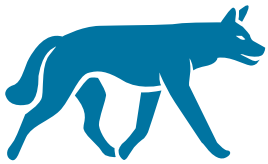

NSWDOG SOP5
Aerial baiting of wild dogs with sodium monofluoroacetate (1080)

Background

Lethal baiting is considered to be the most cost-effective control method currently available and is the only practical means for achieving population control in remote and inaccessible areas.

1080 is an odourless, tasteless concentrated solution that has a coloured dye added for identification of the toxin. It is used for poisoning of wild dogs by incorporating it into fresh, dried or processed meat baits. Poisoned baits are distributed either on the ground by hand or from the air in a helicopter or fixed-wing aircraft. Ground baiting procedures are described in *NSWDOG SOP4 Ground Baiting of Wild Dogs with sodium fluoroacetate (1080)*.

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 the relevant jurisdiction.

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

- Aerial baiting programs must only occur when subjected to a risk assessment and approved by an Authorised Control Officer (ACO) and relevant authority.
- Baiting with 1080 should only be used in a strategic manner as part of a co-ordinated program designed to achieve sustained effective control. However, in some instances, baiting is reactive, occurring as a response to a series of attacks on livestock.
- Aerial baiting is used for managing large scale predation problems.
- Baiting of dogs with 1080 can only be carried out under conditions set down in a specific permit issued by the Australian Pesticides & Veterinary Medicines Authority (APVMA) under Commonwealth legislation (*Agricultural and Veterinary Chemicals Code Act 1994*).
- In NSW 1080 must also be used in accordance with the *Pesticides Act 1999* and the relevant Pesticide Control Orders (that include distance restrictions, signage and notification requirements).
- In NSW aerial baiting of wild dogs is restricted to areas that meet the restrictions stated in LLS and NPWS approved guidelines/procedures. Approval for every aerial baiting program on land reserved under Part 4 of the *National Parks and Wildlife Act 1974* must

be obtained from the relevant NPWS Branch Director. For all other land, approval for every aerial baiting program must be obtained from the LLS Chair of Chairs or their delegate. Aerial baiting must be organised through either LLS or NPWS or any other approved NSW public authority.

- Aerial baiting programs are limited to areas and situations that meet the restrictions stated in the LLS and NPWS approved task profiles and procedures for aerial baiting (available from ACOs).
- Strategic aerial baiting programs are usually conducted annually to maintain effective dog-free buffer zones adjacent to livestock grazing areas.
- Timing and frequency of baiting depends on a number of variables including resources available, value and vulnerability of livestock, availability of alternative prey for wild dogs and season (weather, water availability, stage of dog breeding cycle). In eastern Australia it usually occurs in late autumn to early winter.
- Where precision of bait placement is essential, helicopters are preferred over fixed-wing aircraft. Helicopters are more easily manoeuvred and so are used in mountainous terrain. Fixed wing aircraft are used in extensive flatter terrain. Use of fixed wing aircraft is only permitted in the Western Division of NSW.
- In NSW 1080 must also be used in accordance with the *Pesticides Act 1999* and the relevant Pesticide Control Orders (that include distance restrictions, signage and notification requirements).
- 1080 is a restricted chemical product (under Regulation 45 of the Agricultural and Veterinary Chemicals Code Regulations 1995) and is listed as a Schedule 7 – Dangerous Poison under the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP). These listings require special precautions in the manufacture, handling, storage and use of 1080, along with specific regulations regarding labelling or availability.
- Handling of 1080 concentrated solution and preparation of baits must only be performed by an authorised person (ACO) who has the appropriate training.
- Prepared and manufactured 1080 baits can only be obtained through authorised government agencies.
- The 1080 user should refer to the NSW Vertebrate Pesticide Manual for all relevant legislation and its application.

Animal welfare implications

Target animals

- The toxicity of 1080 is due to the conversion of fluoroacetate to fluorocitrate, which inhibits the tricarboxylic acid cycle – a mechanism necessary for cellular energy production. In general, herbivores experience cardiac failure, whereas carnivores experience central nervous system (CNS) disturbances and convulsions and then die of respiratory failure. Some species, usually omnivores such as pigs, can be equally affected by both CNS and cardiac signs.
- After a wild dog has ingested 1080 there is a latent period of around 30 minutes to 3 hours before initial signs such as hyperexcitability, vocalisation, manic running and

vomiting/retching are observed. Although the precise nature and extent of suffering after ingestion of 1080 is unknown, it is likely that the animal will experience distress and possibly pain during this initial stage. In the final stages of toxicosis, signs of central nervous system disturbance are marked and include collapse, convulsions and tetanic spasms. During periods of prolonged convulsions it is possible that animals are lucid between seizures, however this is difficult to assess. If animals *are* conscious during the convulsive episodes or if they become conscious afterwards it is possible that they may experience pain and anxiety. There is also potential for injuries to occur after the appearance of clinical signs.

- To minimise the animal welfare implications of leaving dependent pups to die a slow death from starvation it is preferable not to undertake baiting programs when females are whelping i.e., late winter to spring in temperate areas. This is also the time when females are moving around least within their home range thus reducing the likelihood of finding baits.

Non-target animals

- 1080 is toxic to a wide range of species including birds, mammals and reptiles; however there are marked differences in sensitivity. Dogs are extremely sensitive, and most other mammalian carnivores are highly sensitive to 1080 poisoning. Herbivores are less sensitive, and birds and reptiles increasingly more tolerant.
- Poisoning of non-target species can occur either directly by eating baits intended for wild dogs (primary poisoning) or through the scavenging of tissues or vomitus from a poisoned animal (secondary poisoning).
- The susceptibility of non-target species to 1080 poisoning is determined by many factors including sensitivity to the poison, body weight, concentration of 1080 in the bait, bait placement, bait type and palatability, timing of baiting and level of exposure to toxic baits.
- Surface laid baits (whether distributed aerially or from the ground) can be more easily found by target and non-target animals than buried baits. Although most baits are either removed within a few days, are decomposed by insects, or the 1080 degrades from microbial and fungal activity, remaining dehydrated meat baits can stay toxic for many months, especially in drier regions where decomposition and 1080 degradation is slow.
- To help reduce risks to non-target animals the following baiting practices are followed:
  - *Bait type* – dried meat baits are used to improve target specificity and to reduce insect activity. They are highly attractive to wild dogs but because of their dry, tough consistency will less likely be consumed by scavenging birds or native marsupial carnivores.
  - *Bait size* – each red meat and offal bait must weigh approximately 250 gms prior to any drying process.
  - *1080 concentration* - each bait contains a precise amount of 1080 (6.0 mg is recommended) that is sufficient to deliver a lethal dose to a wild dog. The rate is calculated to minimise sub-lethal doses and overdosing.

- *Distance between baits* – The minimum distances for the laying of 1080 wild dog baits have been set to minimise the risk to people and to non-target animals. Aerial baiting for wild dogs is permissible at a rate of up to 40 baits per transect km.
- *Timing of baiting* – the risk of poisoning non-target species is increased when regular food sources are scarce, therefore timing should be adjusted to lessen exposure.

First aid for dogs

- Wild dog baits are highly attractive to other carnivores. Care must be taken to ensure that working dogs and pets do not come into contact with wild dog baits. The prognosis for poisoned dogs is extremely poor unless vomiting can be induced shortly after ingestion of the bait and before clinical signs are evident.
- If a working dog or pet is known to have consumed a bait but is NOT yet showing signs of poisoning, induce vomiting by giving one of the following emetics by mouth:
  - washing soda crystals (sodium carbonate) – 3 to 5 crystals orally, DO NOT use laundry detergents or powders
  - table salt – 2 teaspoons of salt in 1 cup of water; more or less depending on the size of the dog
  - dilute hydrogen peroxide (3% solution) – 3 to 5ml
  - If the dog has vomited, clean it up immediately as the vomit is toxic.
- THEN SEEK VETERINARY ATTENTION IMMEDIATELY. The sooner action is taken following poisoning the better the prognosis.
- If these emetics are not immediately to hand or you are not having success in making the dog vomit it is better to seek veterinary attention immediately rather than waste time.
- If the dog has already begun to show signs of toxicosis (retching and vomiting, frenzied behaviour such as running and howling, convulsions, difficulty breathing etc.), DO NOT induce vomiting, but seek veterinary attention without delay.
- Veterinary intervention aims to decrease 1080 absorption and facilitate excretion; control seizures; and support respiration and cardiac function.
- See *First Aid – 1080 and your dog* for more information: https://pestsmart.org.au/resources/

Workplace health and safety considerations

- If poisoning occurs, contact a doctor or the Poisons Information Centre (Ph 13 11 26) IMMEDIATELY. Urgent hospital treatment is likely to be needed. There is no effective antidote to 1080.
- For further information refer to the Material Safety Data Sheet (MSDS), available from the supplier, the Pesticide Control (1080 Bait Products) Order, and the NSW DPI Vertebrate Pesticide Manual.

Procedures

- An ACO must conduct a risk assessment to determine if it is appropriate to supply 1080 baits to any person. Risk assessments should consider threats to non-target species particularly domestic dogs, human health and the environment.
- ACOs must conduct a risk assessment of planned group baiting programs where baiting occurs less than the prescribed minimum distances provided in the current 1080 PCO.
- Users of 1080 must always refer to any risk assessment or specific permit, approved label and Pesticide Control (1080 Bait Products) Order for up-to-date information on conditions of use including distance restrictions, public notification and bait preparation, distribution, storage, transportation and disposal.
    - Pesticide Control (1080 Bait Products) Order: https://www.epa.nsw.gov.au/your-environment/pesticides/pesticides-nsw-overview/pesticide-control-orders
    - NSW DPI Vertebrate Pesticide Manual: https://www.dpi.nsw.gov.au/biosecurity/vertebrate-pests/publications/nsw-vertebrate-pesticide-manual

Fixed wing aircraft or helicopters

- The aircraft must be suited to the purpose and must be registered to perform the task as per agency guidelines.
- The aircraft must be equipped with a Global Positioning System (GPS) that has a moving map display with topographic features and dull data logging capabilities.
- Crew must include a navigator (appropriately trained air observer).
- The location of all bait transects must be accurately recorded and kept for at least three years.
- A restrained leak–proof bait hopper and bait distribution mechanism (or equivalent) should be used for dispensing of baits.
- The pilot must be suitably experienced and licensed to perform the task
- Aircraft operators must ensure that their flying operations comply with requirements of the Civil Aviation Safety Authority.

Planning

- Aerial baiting should not be undertaken in excessively windy conditions where accuracy of bait dispersal and ability to maintain appropriate groundspeed may be adversely affected.
- Prior to the flight, map out transects (or flight lines) at 1km apart and calculate the baiting density in baits per square kilometre. The transect length is divided by the ground speed to give an even distribution of baits for the area.
- Enter the transect coordinates into the GPS to ensure accurate navigation and dispersal.

Dispersal of baits

- Baits must be dispersed a minimum of 100m from park boundary, 500m (helicopter) or 1000m (fixed wing) from habitation, 10m (helicopter) or 100m (fixed wing) from property boundary, and 20m (helicopter) or 100m (fixed wing) from domestic water supply. Refer to the relevant PCO for these distances.
- Provisions must be in place to ensure that baits are dropped only within the target area.
- Following the pre-determined transects, drop the baits at a linear rate to achieve the desired baiting density (up to 40 baits per transect km). The aircraft should travel at a suitable ground speed and height that enables the baits to be safely dropped with accuracy and precision.
- Bait dispersal locations should be recorded by GPS coupled to software capable of storing these positions.
- A timing system should be employed to indicate when to drop each bait to achieve the pre-determined spacing.

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