

Code of Practice

Wet Tropics Management Authority

Use of 1080 for Pig Control in the Wet Tropics WHA

CODE OF PRACTICE FOR USE OF 1080 FOR PIG CONTROL IN THE WET TROPICS WHA

**(Attachment A of Wet Tropics Policy:
Use of Compound Sodium Fluoroacetate (1080)
in the Wet Tropics WHA)**

1. Preamble

- 1.1 The feral pig is a 'declared' animal under the Regulations of the *Land Protection (Pest and Stock Route Management) Act 2002*. It is categorised as a Class 2 pest. Section 77 of the Land Protection Act places the responsibility on the owner of land to take reasonable steps to keep the land free from feral pigs.
- 1.2 The 'predation, habitat degradation, competition and disease transmission by feral pigs' has been listed as a key threatening process under the *Environment Protection Biodiversity Conservation Act 1999*.
- 1.3 The biology and ecology of feral pigs are major predisposing factors in the impact they can have on the environment. Their large robust bodies, specially developed snouts for rooting-up the ground and omnivorous diet allow them to impact upon a wide range of habitats. Their opportunistic feeding habits and omnivorous diet allow them to exploit various temporarily abundant food sources, such as fruits, seeds, foliage and stems, rhizomes, bulbs and tubers, fungi and animal material.
- 1.4 Feral pigs are large animals and require a relatively large amount of 1080 for a lethal dose. This clearly poses a non-target risk to smaller native animals particularly small mammals.

2. Introduction

- 2.1 This Code defines procedures to be followed when using 1080 poison for control of feral pigs in the Wet Tropics of Queensland World Heritage Area.
- 2.2 There are occasions when there is a real need to reduce environmental damage within the World Heritage Area caused by feral pigs.
- 2.3 Trapping is the preferred method where it has proven to be effective and is logistically possible. Where this is not the case, 1080 poison may be a prudent and feasible alternative for controlling environmental damage. A permit will only be issued when it can be demonstrated that there is unlikely to be any potential for significant impact on native wildlife.
- 2.4 There is ongoing work into safer, more humane and more feral pig specific alternatives to 1080 poison. These alternatives will be implemented when found to be practically viable. In the interim, the dose-rate of 1080 and the methodology employed must ensure that the death of feral pigs is as pain and distress-free as possible.
- 2.5 The procedures outlined in this code cover the following issues:
 - a requirement for an on-ground assessment of the need for poison baiting
 - assessments of the potential for impacts on non-target wildlife
 - baiting to be carried out only by accredited and trained officials
 - the recovery of baits and poisoned carcasses to avoid secondary poisoning
 - prohibition on broadscale use of 1080 baiting

3. Responsibilities

- 3.1 The use of 1080 is subject to strict regulatory control set down in the *Health (Drugs and Poisons) Regulations 1996* which are administered by the Queensland Department of Health. Baits can be used for no other purpose whatsoever other than for the destruction of feral pigs, wild dogs, foxes and rabbits.

- 3.2 1080 can be supplied and used only by accredited Department of Natural Resources, Mines and Energy and Local Government Officers for the purpose of controlling declared pest animals and cannot be sold directly to the public. Only those officers employed by the Department of Natural Resources, Mines and Energy and Local Government who have undertaken practical and written examinations and received approval from the Queensland Department of Health are authorised to prepare 1080 solution. It is required that all 1080 operators must be retrained every two years.

4. Issue of permits to use 1080 poison

- 4.1 Any permit to lay 1080 poison baits within the World Heritage Area will only be issued on an individual case-by-case basis.
- 4.2 A permit to lay 1080 poison will be issued only when the Authority is satisfied that there is an unacceptable risk to the World Heritage values of an area as a result of feral pig activity, that the use of 1080 does not pose an unacceptable risk to non-target species or World Heritage values and that alternative control measures including trapping and shooting have been considered and are not practicable. An evaluation system (section 7 below) is to be used as a mandatory checklist before a permit is issued.
- 4.3 The DNR&E methods, guidelines and operational policies on the use of 1080 for feral pig baiting in the Wet Tropics region (Davis 2003) will be adopted as a standard condition to any permit issued by the Authority, with the amendment that the checklist criteria described in section 7 below will replace Checklist (Appendix 1) and Schedule for Checklist (Appendix 2) of the DNR&E guidelines. The DNR&E guidelines are an attachment to this Code.

5. Laying of 1080 poison baits

- 5.1 The mixing of 1080 poison with bait shall be done only by an authorised, qualified officer.
- 5.2 Baits are not to be laid closer than 5 km to a town, and 2 km from a dwelling without Land Protection Officer approval. Topography and other factors may allow for baiting to be safely carried out inside these distances.
- 5.3 Adequate risk assessment involving pre-bait, free-feeding surveys must be undertaken prior to any final decision to bait in the World Heritage Area. To the extent possible, the presence of both feral pigs and any native wildlife accessing baits must be determined.
- 5.4 Poison baits must not be laid where there is a likelihood of members of the public coming into contact with the poison, within 20 metres of a stream containing permanent running water and 10 metres from a road or access track unless public access to the road or access track is denied.
- 5.5 Meat baits will not be used.
- 5.6 Free-feed material should be presented in containers. Suitable containers are described in Davis (2003) such as 200 litre drums cut in half. Containers should be at least 400mm high. Free-feeding should be undertaken for at least three consecutive nights. Free-feeds must be placed out just prior to nightfall and retrieved at dawn. Free-feeds must be coloured with green food colouring.

5.7 All bait material must be coloured with green food colouring. Baited material should be presented in the same containers as used in free-feeding. Baits must be laid just prior to nightfall. Uneaten bait material must be removed or securely covered at dawn. Any leftover material at the completion of a program should be removed from the World Heritage Area.

6. Post-baiting precautions

6.1 The site must be visited within 24 hours of laying bait and all reasonable effort must be made to recover carcasses. Carcasses that are collected should be disposed of in accordance with Local Government regulations. If no provisions exist, then carcasses should be disposed of by either burial or incineration.

7. Evaluation checklist for the approval of use of sodium fluoroacetate (1080) for feral pig control in the Wet Tropics WHA

7.1 Baiting with 1080 will be permitted if:

7.1.1 (a) Unacceptable levels of adverse environmental impacts resulting from feral pig activity are evident at the site; or

(b) A public safety or health issue is present as a result of the presence or activity of feral pigs; and

7.1.2 The World Heritage Area is the only practical area in which to bait with 1080 to enable the feral pig population to be efficiently controlled in the locality; and

7.1.3 No practical alternatives to 1080 baiting can be demonstrated (eg. other forms of feral pig control are not feasible or are ineffectual); and

7.1.4 DNR guidelines and methodology (Davis 2004) can be practically employed at the site; and

7.1.5 The anticipated benefits and harms of any 1080 pig baiting program have been clearly stated; and

7.1.6 No significant impact to World Heritage values is expected to occur as a result of the baiting program.

8. References

Davis, P. (2003). *Sodium Fluoroacetate (1080) Feral Pig Baiting Guidelines for the Wet Tropics Region North Queensland*. Queensland Department of Natural Resources, Mines and Energy. Atherton. (see Appendix 1).

Disclaimer

This policy does not necessarily reflect the views of the Australian and Queensland Governments.

Approval

Wet Tropics Board

Meeting 58
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Appendix 1

Sodium Fluoroacetate (1080) Feral Pig Baiting Guidelines For The Wet Tropics Region, North Queensland

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Objective

The objective of these guidelines is to further minimise potential risk to non-target species that 1080 feral pig baiting may pose to native species, including the Cassowary and Spot-tail Quoll in North Queensland. In following these guidelines, it is envisaged that 1080 will only be used in cases of agricultural economic loss and/or exotic disease outbreak. Trapping, through the Community Based Feral Pig Trapping Program, will remain the initial control option for reducing the impacts of feral pigs on the environment in the Wet Tropics Region of North Queensland. 1080 baiting would only occur within the World Heritage Area after approval from the Wet Tropics Management Authority.

Scope

These guidelines apply to properties within the Wet Tropics Region.

These guidelines only apply to 1080 dose rates of 36mg/ml .

Abbreviations

WTR	Wet Tropics Region
WHA	World Heritage Area
WTMA	Wet Tropics Management Authority
EPA	Environmental Protection Agency
NR&M	Department of Natural Resources and Mines
LPO	Land Protection Officers
CBFPTP	Community Based Feral Pig Trapping Program
1080	Sodium Fluoroacetate

Background

These guidelines should be read in conjunction with Sections 69, 70, 71, 73, 76, and 80 of the *Rural Lands Protection Act 1985* (RLPA). These sections outline the legislative requirements of landholders to control Declared Pests. The new Land Protection Pest and Stock Route Management Bill was recently passed by Parliament, to replace the RLPA. However, schedules are yet to be listed so the RLPA is still the current Act. NR&M policies titled "Feral Pig Management" and "Required Level of Control of Declared Animals" should be consulted (Appendix 4 and 5).

The use of 1080 for feral pig control on freehold/leasehold properties in, and adjacent to the WHA, has been a concern to WTMA, EPA and a number of local environment groups. The major concern is potential off target fatalities, especially that relating to the Cassowary, when fruit is presented as a bait material, and to the Spotted-tailed Quoll if meat baits are used. The Cassowary is listed as an endangered species, with current populations estimated at 1500 individuals. The Quoll is also listed as a rare and threatened species.

1080 Selectivity and Delivery

1080 Selectivity

Most 1080 testing in this country has been conducted on plant, bird and animal species in Southern and Western Australia. 1080 (fluoroacetate) is known or assumed to occur in about 39 species of plants in the family Leguminosae (Everist, 1981). The South West corner of Western Australia has the highest recorded number of plant species containing 1080 in Australia.

The only plant species known to contain 1080 in the WTR is Heartleaf Poison Bush (*Gastrolobium grandiflorum*). Heartleaf occurs in the drier areas of the WTR and has been recorded at Starcke, Mt Spurgeon, Mount Molloy and Davies Creek (QLD Herbarium, 1999).

Cassowaries are native to North Queensland and while nothing is known of their 1080 susceptibility, research has generally shown that birds are less susceptible to 1080 poisoning than mammals. Other large flightless birds of Gondwanian descent such as Emus and Ostriches are relatively resistant to 1080 poisoning.

It may be erroneous to extrapolate data from 1080 tests undertaken on Emus and Ostriches to Cassowaries. However, it should be noted that the sedation rates used to capture Cassowaries for research are significantly higher than those used on Emus (*pers comm.* Andrew Dennis), and this may be indicative of greater resistance to toxins in general.

In addition, the gastro-intestinal transition time of the cassowary is just a few hours (*pers. comm.* Jim Mitchell), compared with 2 to 3 days for a feral pig. 1080 is not a poison until converted from the fluoroacetate state as administered, to a fluorocitrate as it is absorbed and changed within the body's cells. The shorter the gastro-intestinal transition time, the lower the amount of 1080 absorbed and converted to the poisonous citrate.

1080 Delivery

The delivery of 1080 to the target animal is the most important part of a baiting program. Poor delivery can lead to increased off target bait uptake, decrease number of target species killed and have possible secondary effects such as causing bait shyness in the target species, if sub-lethal doses are consumed. Within the WTR there is variation in bait delivery between the tableland and lowland areas. This is generally due to the difference in primary production practices and the variety of crops grown. Pigs are generally nocturnal and this can be used to advantage when trying to preclude diurnal animals such as Cassowaries from taking baited material.

Bait selection: Lowland

The two major bait materials used are sugar cane and bananas. To a lesser extent pigs damage Pawpaw and small crops, such as Taro, and the respective material is used. The bait material chosen generally reflects what the pigs are feeding on. Although bananas are an excellent material the use of bananas has raised some concerns that fructivorous native species, including Cassowaries, may ingest the baited fruit. Strategies need to be implemented to preventing this from occurring.

Experience has shown that most native birds and animals prefer to feed on ripe bananas whereas pigs will feed on both green and ripe bananas with equal gusto. Ripe bananas are not used as a bait material. All fruit is diced and the 1080 is either injected between the skin and flesh or rolled in a cement mixer. Sugar cane is generally used as a bait material when canegrowers are harvesting, and pigs are feeding on mature cane. Cane is generally prepared by using cane billets from the harvesting operation. Billets of cane, 100mm-200mm in length, are rolled in 1080 in a cement mixer. This method has proven successful in the Little Mulgrave area.

Bait selection: Tablelands

The Atherton Tableland is one of the most agriculturally diverse areas in Australia. Commercial species grown include Mango, Lychee, Macadamia, Banana, Sugar cane, Maize, Avocados, Coffee, Tea, Citrus, Pawpaw, Stone fruits, Pineapple, Peanut, Navy bean and a myriad of horticultural crops such as pumpkins, melons, potatoes and most vegetable crops. It has an extensive fodder and seed industry growing both legume and grass species. Feral pigs have been known to feed on all of the above crops at one time or another. Predation on livestock from the dairy and beef industry is rare. Bait selection reflects on what crop is currently being damaged. Fermented grain/nuts including maize, peanuts and dolichos are successfully used on the Atherton Tablelands but yield poor results when used on the lowland.

Pre feeding

An integral part of a pig baiting program is to pre-feed for a number of consecutive nights. This encourages pigs to congregate and feed in a known area. After three to five nights of feeding on un-poisoned bait material the bait is then loaded with 1080. Free feeding should be conducted in the same manner as the final baiting.

All fruit and grain must be died with green food colouring. Not only does this assist in distinguishing it from foodstuffs for human and animal consumption, but also it has been shown that grain dyed green is less attractive to birds (Vertebrate Pesticide Manual, NR&M). Grain must be died green as stated under section 297 of the *Health (Drugs and Poisons) Regulation 1996*.

If drums, bait stations or containers are to be used in the final baiting as apart of a delivery system then they should be used in the pre feed. Pre feeding is important in determining how much material needs to be presented. For example, following an on-ground inspection to estimate pig numbers the first prefeed may be 100kgs. If this is consumed in the first night then the next night 150 kg will be presented. If it is found the following day that not all was consumed then the final baiting will be limited to 125 kg. The ideal is to have minimal bait remaining after the pigs have fed.

Prefeeding on the lowland areas is generally carried out for 3-5 consecutive nights. This can vary however depending on the damage being sustained by the grower. A banana grower losing 40 mature plants a night may not wish to conduct 5 prefeeds and risk losing 200 plants. In these instances prefeeding may only occur for 1-2 nights, prior to baiting in an effort to prevent further damage, rather than waiting for all the pigs to become accustomed to the pre feeds.

On the Tableland, pre feeding is somewhat more reactive. Due to the variety of food available pigs will often move from crop to crop. They may feed on potatoes for two nights before moving onto the neighboring peanuts. On most occasions pre feeding will often only occur for 1-2 nights before the 1080 is introduced. Similar techniques are used to determine bait quantity in both areas.

Bait laying and bait stations

After pre feeding has been undertaken the presentation of the final bait material plays a major part in reducing the potential for off-target damage. The most important aspect of bait presentation with respect to Cassowaries is that they are active during the day while most pigs move into crops to feed at night. Therefore bait material can be put out at night and retrieved at first light with little risk to the Cassowary.

In areas outside the WTR baits are generally laid in a trail along the ground. This prevents one or a number of dominant pigs from exclusive feeding which occurs if the bait is dumped in a pile. Exclusive feeding is discouraged, as it does not allow all the pigs to receive a lethal dose of 1080, which can lead to problems such as bait shyness. The laying of trails along the ground in the WTR is generally not recommended as smaller animals such as Musky Rat Kangaroos can access the bait material. Musky Rats are also known to cache food, which can lead to baited material being taken away from the baited area. To prevent this from happening it's better to place the baited material into a number of containers. The containers can be 220 litre drums cut lengthwise which are of sufficient height to prevent native rats from accessing the bait. To prevent exclusive feeding, a number of drums need to be used. A 100 kg baiting may use 10 containers with 10 kgs in each. The drums can be further fitted with hinged lids, or sheets of iron, that pigs can open with their snouts. The problem incurred when making bait stations is if you make it too difficult for the pigs, they will bypass the stations and continue to feed on the crop. This is where pre-feeding can help in fine-tuning the bait delivery. Bait stations should always be placed between the crop and the cover in which the pigs are moving from. After baits are placed out it is imperative that they are retrieved or covered at first light. Remaining bait material should be buried at a depth of 800mm and covered. Pig carcasses should be retrieved where possible and disposed of accordingly, with respect to the provisions of the relevant Local Government Authority.

References

- Everist, SL. 1981 "Poisonous Plants of Australia" 2nd Ed, Angus and Robertson. PP 23,39, 664.
- Herbrechts 1999. Queensland Herbarium, Environmental Protection Agency, Brisbane.

Current Feral Pig Control Methods

Shooting

May be ineffective in some areas due to dense cover. Shooting tends to disperse pigs and makes them more wary of humans. This decreases the rates of capture using other control methods. Shooting is generally more successful in plantation crops than cane due to visibility. Aerial shooting in the WTR is limited due to the closely settled nature of the area which impacts on a helicopters ability to fly low.

Dogging

Believed by some to be more disruptive and damaging to wildlife than the presence of feral pigs, dogging is always controversial. Dogs are often lost by unscrupulous hunters and become feral, which in turn can lead to problems with cattle producers. It can have a negative impact on other control methods such as baiting and trapping. Dogging may be effective in keeping pigs away but generally does not have a major impact in reducing overall pig numbers. Can be effective in specialised situations such as on islands. Not perceived by the community in general as being humane. Dogging is firmly entrenched in the WTR by landholders as a means of control.

Trapping

Currently seen as the most “environmentally friendly” and accepted tool for reducing feral pig impact on agriculture and the environment. The CBFPTP is active throughout the WTR. Although trapping has resulted in a number of cassowary deaths due to non-selective trigger mechanisms, these triggers are continually being refined.

Fencing

Feral pigs have the ability to “walk” through most fences including those electrified. Exclusion fencing is expensive with respect to initial installation and subsequent maintenance. Frequent tree-falls and floods may compromise fencing. Another form of fencing is to use the fence in a funnel design that allows pigs into an area but not allow them to flee quickly. More time is then available to shoot the pigs before they can escape into thick cover. Fencing may have a detrimental effect on the migratory and dispersal patterns of wildlife in some situations.

Baiting

Two registered products being yellow phosphorus (CSSP) and 1080.

The use of 1080 is believed to be more humane than CSSP. CSSP is favoured by a number of landholders as it is a take home poison that can be laid when and where they see fit. Baiting can achieve the highest, most rapid reduction in the feral pig population, for a given area. It should be noted that the withholding of 1080 has led some landholders to use non-specific poisons, such as organophosphates, diquat, paraquat etc, which have greater negative impacts on wildlife and the environment in general. Baiting strategies need to be implemented to reduce the risk to non-target species.

Summary

The use of active control techniques such as dogging and shooting impart a feeling of accomplishment and of “doing something” by a landholder when compared to the use of passive techniques such as baiting, fencing and trapping. No known individual control method will fully reduce the impact of feral pigs on agriculture or the environment. An integrated management approach utilising some, or all, of the above tools when and where

situations best dictate is encouraged. Land holders are encouraged to contact their nearest Land Protection Officer to discuss integrated management programs that may work best in their particular situation.

Baiting Guidelines for Land Protection Officers

A physical property inspection to assess damage must be undertaken by the LPO. It will be at the discretion of the LPO to decide if baiting is warranted. To assist the affected landholder, inspection should be carried out within 48 hours.

At least 72 hours notice of the intended laying of baits must be served by landholders on every resident and/or occupier of the land whose property boundary falls within 2 km of the bait site. This includes notifying QPWS and DNR State Forest custodians. (See attached contact list). Notice can be given prior to the inspection taking place.

Baits not to be laid closer than 5 km to a town, and 2 km from a dwelling other than the owners, without Land Protection Officer approval. Topography and other factors may allow for baiting to be safely carried out inside these distances.

Baiting within the World Heritage Area to be approved by WTMA on a case-by-case basis.

Complete checklist (Appendix 1)

Bait material

Meat baits should not be used.

Billets of cane have been used successfully as a bait material when pigs are eating cane.

Fermented grain or green bananas will be the only other material used.

Preparation for baiting

Free feed material should be initially presented in containers. Suitable containers may be 200 litre drums cut in half. Containers should be at least 400mm high.

If pigs refuse to pre feed from containers after two nights then place the bait material on the ground.

Free feeding to be carried out in an attempt to ascertain the number of pigs present.

Free feeding should be undertaken for at least three consecutive nights.

Free feeds must be placed out just prior to nightfall and retrieved at dawn.

Free feeds must be coloured with green food colouring.

Baiting

All bait material must be coloured with green food colouring.

Baited material should be presented in the same containers as used in pre-feeding.

If pigs refuse to feed from containers, all effort should be made to collect left over material.

Baits must be laid just prior to nightfall.

Un-eaten bait material must be removed or securely covered at dawn.

Any leftover material at the completion of a program should be buried at least 600mm.

Post Baiting

Feral pig carcasses located on the property will be disposed of in accordance to Local Government regulations. If no provisions exist then carcasses to be burnt and buried.

Appendix 1

Checklist

Complete before baiting

Owner _____

Address _____

Lot/Plan _____

LPO _____

	Yes	No (no baiting)
A) Have other control methods been considered? Check Schedule A	_____	_____
B) Has a damage inspection been carried out? Check Schedule B	_____	_____
C) Does damage indicate substantial economic loss? Check Schedule C	_____	_____
D) Endangered species are unlikely to be present? Check Schedule D	_____	_____
E) Does property exceed size, locality restrictions? Check Schedule E	_____	_____
F) Have all adjacent landholders been notified? Check Schedule F	_____	_____
G) Have QPWS and DNR been notified? Check Schedule G	_____	_____
H) Is the landholder perceived as responsible? Check Schedule H	_____	_____
I) Landholder knows their responsibilities? Check Schedule I	_____	_____

All answers must be yes, before baiting can commence.

Signed

Land Protection Officer _____

Appendix 2

Schedule for Checklist

Schedule A

Have other control methods been considered?

Ask the landholder if he has tried trapping as a method of control. Contact CBFPTP coordinator and discuss.

Schedule B

Has a damage inspection been carried out?

A damage inspection must be carried out to ensure that economic damage is taking place. Some landholders may see baiting as the easy option, when trapping would suffice in controlling the agricultural damage.

Schedule C

Does damage indicate economic loss?

Substantial economic loss is hard to measure. Current market prices, crop size, etc. all need to be considered. Physical destruction of crops is the only way to quantify. Substantial economic loss varies from crop to crop. At LPO discretion.

Schedule D

Endangered species are unlikely to be present?

Contact QPWS to get the latest information on threatened and endangered species movements. Some areas that occur in the WTR have been extensively cleared. Baiting may not pose a significant threat to endangered species when baits are placed in these cleared areas.

Schedule E

Does property exceed size, locality restrictions?

Properties must exceed 40 hectares. Baits not to be laid closer than 5 km to a town and 2 km from a dwelling other than the owners, without Land Protection Officer approval. Topography and other factors may allow for safe baiting inside these limits.

Schedule F/G

Have all adjacent landholders been notified?

At least 72 hours notice of the intended laying of baits must be served by landholders on every resident and/or occupier of the land whose property boundary falls within 2 km of the bait site. This includes notifying QPWS and DNR State Forest custodians. (See attached contact list). Notice may be given prior to inspection.

Schedule H

Is the landholder "responsible"?

Have they been refused a baiting service before? If so, why.

Schedule I

Landholder knows their responsibilities?

Ensure the landholder follows instructions given, in regards to free feeding, bait presentation and the retrieval and disposal of bait material. Failure of landholder to comply with instructions will disqualify them from further baiting.

