

PESTSSMART

Feral Pigs: a field guide to poison baiting

Jason Wishart
2015

An Invasive Animals Cooperative
Research Centre Project



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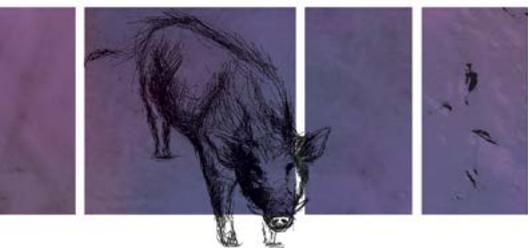
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1. Introduction

Taxonomic name:

Sus scrofa

Common names:

feral pig, feral hog, feral swine, wild pig, wild boar



Feral pigs have been in Australia since European settlement. Early wild populations established from deliberate release and accidental escape of domestic pigs, so most were found near settlement areas. Since then, feral pigs have spread across nearly 45% of Australia and they are found in all states and territories.

Feral pigs are highly adaptable and tolerate a wide range of different climates and habitats. However, they are fairly heat intolerant and need access to water and dense vegetation in hot conditions to drink, wallow and rest in the shade. As a result, they are mostly nocturnal in hot conditions, becoming active late in the afternoon and moving back to cover shortly before sunrise. When it is really hot, they may visit heavily shaded waterholes during the day. Feral pigs may also feed during daylight hours when it is cool and overcast.

Feral pigs are creatures of habit and use regular travel pads to water, preferred feeding grounds and bedding sites unless they are repeatedly disturbed. Signs like wallows, tracks, scats, fence crossings, rubbing and tusking are often found on these travel pads and are very useful for determining recent presence.

Predation, disease transmission, habitat degradation and competition by feral pigs are all listed as a key threatening process under the [Environment Protection and Biodiversity Conservation Act 1999](#).

Feral pigs consume a variety of wildlife including lizards, snakes, turtles, frogs, birds, crustaceans, insects and worms. They also compete with wildlife for resources and destroy habitat by trampling and ground rooting, which promotes weed establishment, changes vegetation structure and causes soil erosion. Feral pigs impact agricultural production by eating and trampling



crops, attacking lambs, competing with livestock and damaging infrastructure. Feral pigs also carry many endemic diseases such as leptospirosis and brucellosis, and they are potential carriers of exotic diseases such as classical swine fever and foot-and-mouth disease, most of which threaten wildlife, human and livestock health.

Because of the damage they cause, management of feral pig populations is

often carried out. In Australia, this is done by poison baiting, aerial shooting, hunting, trapping and fencing. All have their positives and negatives, but none are 100% effective if they are used on their own. Best practice pest management programs should use several techniques in combination. It is also important to cover as large an area as possible and undertake management regularly to help slow reinvasion and population recovery.



Figure 1: Good conditions for baiting in the Macquarie Marshes, New South Wales.



Figure 2: Poor conditions for baiting at the same site a few months later.

This field guide mainly focuses on poison baiting, but there are several aspects

covered that may be helpful for other control techniques, such as trapping.

2. Timing

The most important thing to think about when planning a baiting program is timing.

In all habitats, resources become more or less abundant at different times of year (see Fig.1 and Fig. 2 on previous page) and the best time to bait feral pigs is when alternate foods and water are scarce. During this time, feral pigs are more likely to eat baits and their daily activities are likely to be confined to particular areas in the landscape, making them easier to target.

In the hill country of eastern Australia the best time for baiting is generally in late autumn, in the tropics of northern Australia its towards the end of the dry season and in the semi-arid rangelands it is when it is hot and dry.

3. Site selection

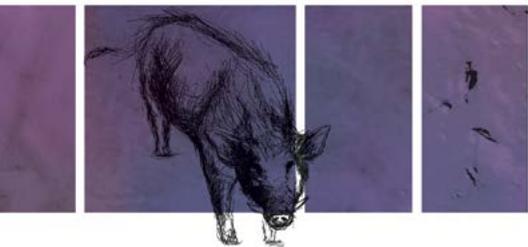
Bait stations should be positioned at feral pig 'hotspots' in the landscape, so they can be found quicker. Feral pig hotspots are areas where pigs are commonly active such as preferred feeding grounds, water-points or travel pads between these areas.

Once the hotspots have been identified, it is important to check them for fresh feral pig signs including tracks, dung, tree rubs, tusking, ground rooting and wallowing (see section 8 - Signs of feral pigs).

If feral pigs are active, you can begin setting up your bait station. You should make sure your bait stations are far enough apart so the same animals don't feed from multiple sites during baiting.



Figure 3: Feral pigs visiting a water-point in the afternoon.



Spacing distances between stations will depend on a number of factors including resource abundance, topography,

climatic conditions and feral pig home range size. A good starting point is >1km apart.

4. Setting up a bait station

At each active hotspot, your bait station should be positioned where feral pigs are most likely to find it. Often this is on a well-used travel-pad to and from water, or on a travel-pad near a hole in the fence. Increasing uptake of bait and decreasing the length of pre-feeding is best achieved by using familiar foods, eg. wheat, barely or sorghum. Manufactured baits specially formulated to be attractive to pigs can also be used.



Figure 5: Example of feral pig bait station on regular travel pad between a day-camp and feeding area.



Figure 4: Feral pigs moving through a fence between dense habitat and a preferred feeding ground.



Figure 6: Feral pigs visiting station and feeding together because bait was laid in a trail.

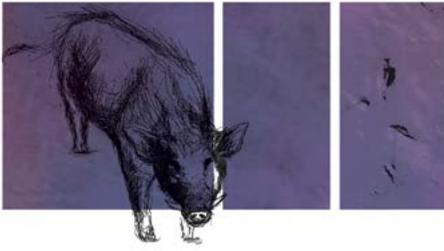


Figure 7: Bait station setup for monitoring with a remote camera.

The pre-feed bait material should be a non-toxic version of the poison bait material you plan to use when you start poisoning, so the animals are accustomed to eating it. The bait should be laid in a trail (Fig. 5), or in several small plies, so that larger animals cannot dominate and eat all the bait. Bait can also be delivered using a HOGGOPPER®, which is a feral pig specific bait delivery device. Attractants such as Carasweet® or molasses may help encourage bait-uptake.



Figure 8: Camera monitoring shows that some pigs in the mob are still not confident to feed from the HOGGOPPER®, so a couple more days pre-feeding would be advised.



6. Pre-feeding

Pre-feeding should be undertaken for at least 5 - 7 days before poisoning.

Pre-feeding allows animals to find your bait and become familiar with it before poison bait is laid. During free-feeding, 10–20kg of non-toxic bait should be placed at your bait stations in a 3 - 5 metre trail (Fig. 9), or in several small piles. More bait can be placed in a HOGHOPPER®, as they are specially designed for this purpose (Fig. 10).

Bait stations should be checked daily, where possible, to measure bait-take and to replace any consumed bait. A HOGGOPPER® can be checked every 2 - 4 days if it is fully loaded. If large numbers of feral pigs are present (confirmed by remote cameras), larger quantities of bait should be laid during the pre-feed process so they do not lose interest in the site.



Figure 9: Feral pigs feeding from a ground deployed bait station



Figure 10: Feral pigs feeding from a HOGHOPPER®

7. Poison baiting

All leftover pre-feed bait should be removed from the site before poison bait is laid so that the only bait available is poisonous.

Once the site is cleared of pre-feed, place an equivalent amount of toxic bait at the station in a similar manner to how the pre-feed was laid (on the ground in trails, small piles or in HOGHOPPER®'s). Feral pigs are cautious animals and small changes may cause them to change their feeding behaviour.

Continue to deliver toxic bait at each station until bait-take ceases (typically 3 days). When poisoning is finished, make sure all leftover toxic bait is removed from the station and disposed of appropriately.

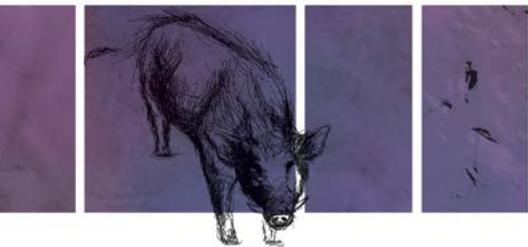
All toxic baiting procedures and toxic bait disposal must be undertaken according to:

- Relevant state and commonwealth legislation,
- Up-to-date information on conditions of use,
- Product label directions,
- Appropriate standard operation procedures and codes of practice.



Figure 11: Large boar found dead after feral pig baiting program.

Best practice pest management programs should use several control techniques in combination.



8. Signs of feral pigs

Look for these field signs that indicate feral pigs have moved into an area.

Wallows

Wallows are commonly found around waterholes, especially during warmer conditions. Feral pigs wallow to cool down and to relieve parasite itch.



Riverbank wallows

Tree Rubs

Feral pigs also leave mud rubs on trees, fence posts and utility poles to remove excess mud and external parasites from their coats after wallowing. Rub trees are often found near waterholes and/or on regular travel-pads to and from waterholes.



Mud rub marks on a tree



Pigs rubbing against trees

Ground rooting

Feral pigs often turn over soil or the ground cover with their snout in search of invertebrates, roots and tubers; this is referred to as ground rooting. Rooting is one of the most common and recognisable signs that feral pigs are in an area. Ground rooting can occur throughout the year, and may be found at particular locations in the landscape.



Ground rooting caused by pigs. Image: Sue Braid



Ground disturbance caused by pigs. Image: IA CRC

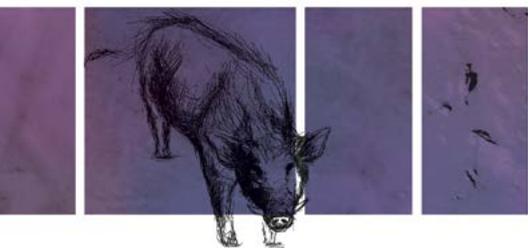


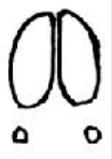
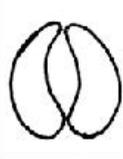
Extensive ground rooting

Dung

Feral pig dung is commonly found along worn travel-pads and at high use areas. Dung may vary in appearance according to their diet, and dung can last in the environment for many months depending on the environmental conditions.





Pig	Goat	Sheep	Deer	Cow
				
				

Tracks of pigs and other domestic animals. Pigs have four toes but only the middle two have well-developed hooves - only these two toes are evident. The dew claws can be seen in very soft ground. A pig track is square in shape with similar length and width. Goat and sheep have similar tracks to pigs but pig spoors are more square and robust. Goat, sheep and deer tracks are often heart-shaped when not splayed (with the front imprint tapers to a sharp point and the back being rounded). Cow tracks show only the edge of the cattle hooves in hard substrate (Moseby et al 2009) (images: Kana Koichi, Jason Wishart and Pip Masters).

Tracks

Feral pigs are a cloven hooved species and so their tracks are similar to deer, sheep and goats. Be careful to not mistake pig tracks for other ungulates' tracks and vice versa.

Pig tracks are more rounded at the tips of the hooves and have a more widely spread dew claws (see diagram above for comparisons of animal footprints).



Travel pads

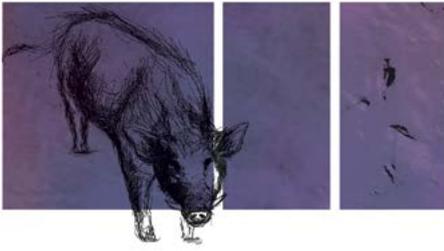
Feral pig travel-pads are often found between day-camps and feeding or watering sites. Travel-pads indicate regular feral pig activity over an extended period of time. Other field signs of feral pigs (footprints, tree-rubs, fence crossings, dung etc) are often found along travel-pads.



Holes in fences

Numerous animals use holes in fences, so it is important to be able to accurately identify feral pig sign at these locations. Feral pig bristles and mud may get caught in the fence as they pass underneath, which is another good indicator that feral pigs are active in the area.





Carrion consumption

At particular times of year it may be common for pigs to consume carrion for added protein. Once a carcass has been discovered, feral pigs often return nightly until little edible material is left.

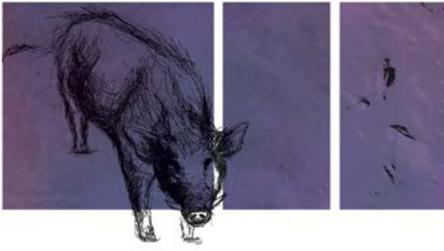


Tusking

Tusking is sometimes found on rub trees along well-worn travel-pads.



*Good timing
+ fresh signs
+ pre-feeding
= best baiting results*



10. Key publications

Australian Government (2005). *Threat Abatement Plan for Predation, Habitat Degradation, Competition and Disease Transmission by Feral Pigs*. Department of the Environment, Water, Heritage and the Arts (DEWH), Canberra.

Bracke M. (2011) Review of wallowing in pigs: description of the behaviour and its motivational basis. *Applied Animal Behaviour Science* 132, 1 - 13.

Caley P. (1994). Factors affecting the success rate of traps for catching feral pigs in a tropical habitat. *Wildlife Research* 21, 287 - 292.

Choquenot D, Kay B. and Lukins B. (1990). An evaluation of warfarin for the control of feral pigs. *Journal of Wildlife Management* 54, 353 - 359.

Choquenot D. and Lukins B. (1996) Effect of pasture availability on bait uptake by feral pigs in Australia's semi-arid rangelands. *Wildlife Research* 23, 421 - 428.

Choquenot D, McIlroy J. and Korn T. (1996) Managing Vertebrate Pests: Feral Pigs. Bureau of Resource Sciences, Australian Government Publishing Service, Canberra.

Cowled B, Lapidge S, Smith M. and Staples L. (2006). Attractiveness of a novel omnivore bait, PIGOUT®, to feral pigs (*Sus scrofa*) and assessment of risks of bait uptake by non-target species. *Wildlife Research* 33, 651 - 660.

Giles J. (1980). The ecology of feral pigs in western New South Wales. Unpublished Ph.D. thesis, University of Sydney, Sydney.

Gongora J, Fleming P, Spencer P, Mason R, Garkavenko O, Meyer J, Droegemueller C, Lee J. and Moran C. (2004). Phylogenetic relationships of Australian and New Zealand feral pigs assessed by mitochondrial control region sequence and nuclear GPII genotype. *Molecular Phylogenetics and Evolution* 33, 339 - 348.

Hone J. (1983). A short-term evaluation of feral pig eradication at Willandra in western New South Wales. *Australian Wildlife Research* 10, 269 - 275.

Hone J (2012). Applied Population and Community Ecology: the Case of Feral Pigs in Australia. Wiley-Blackwell and the Zoological Society of London. United Kingdom.

Hone J. and Martin W. (1998). A study of dung decay and plot size for surveying feral pigs using dung counts. *Wildlife Research* 25, 255 - 260.

Koichi K and Halliday D (2015). Glovebox Guide for Managing Feral Pigs. PestSmart Toolkit publication. Invasive Animals Cooperative Research Centre, Canberra, ACT.

McLeod R. (2004) Counting the Cost: Impact of Invasive Animals in Australia 2004. Cooperative Research Centre for Pest Animal Control, Canberra.

McIlroy J, Gifford E. and Forrester R (1993) Seasonal patterns in bait consumption by feral pigs (*Sus scrofa*) in the hill country of south-eastern Australia. *Wildlife Research* 20, 637 - 651.

Saunders G. and Kay B. (1991). Movements of feral pigs (*Sus scrofa*) at Sunny Corner, New South Wales. *Wildlife Research* 18, 49 - 61.

Saunders G, Kay B. and Nicol H. (1993). Factors affecting bait uptake and trapping success for feral pigs (*Sus scrofa*) in Kosciusko National Park. *Wildlife Research* 20, 653 - 665.

Twigg L, Lowe T. and Martin G. (2007). Bait consumption by, and 1080-based control of, feral pigs in the Mediterranean climatic region of south-western Australia. *Wildlife Research* 34, 125 - 139.

West P. (2008) Assessing invasive animals in Australia 2008, National Land and Water Resources Audit and Invasive Animals Cooperative Research Centre, Canberra.

