

Environmental Threats of National Significance



| **FERAL PIGS**

THREATS
TO NATURE
PROJECT

Feral pigs (*Sus scrofa*) imperil at least 149 nationally listed threatened species. They prey on native animals and plants, dig up large expanses of soil and vegetation in search of food, and foul fresh water. They also host diseases that can be transmitted to other species.

Feral pigs were originally domestic pigs that escaped or were deliberately released for hunting. Like rabbits, pigs breed prolifically when there is a good food supply, increasing their numbers by up to 86% a year. Total population numbers are unknown, but could exceed 20 million. They are distributed across 45% of the mainland, with particularly high densities in Queensland, and there is considerable potential for them to expand their range into areas, such as most of the Kimberley, where they are currently absent or in low densities.

Feral pigs occupy a wide range of habitats, including subalpine grasslands and forests in Kosciuszko National Park, semi-arid floodplains in western New South Wales, rainforests in northern Queensland, and paperbark swamps, floodplains, monsoon forests and dry woodlands in the Northern Territory. They are particularly prevalent around wetlands and river systems as a lack of sweat glands means pigs need water or mud to wallow in when it is hot.

WHY FERAL PIGS ARE A THREAT TO NATURE

'Predation, habitat degradation, competition and disease transmission by feral pigs' was listed as a key threatening process (KTP) in 2001, under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). Feral pigs threaten species and ecological communities in the following ways:

- **Predation:** Feral pigs are extreme generalist foragers and will eat small mammals, birds, reptiles, frogs, crayfish, eggs, earthworms and other invertebrates. They have a major impact on marine and freshwater turtle populations. In Arnhem Land pigs dig up aestivating snake-necked turtles at a rate that is likely to cause local extinctions, and they are thought to have caused a drastic decline of the Jardine River painted turtle in far north Queensland. Also in the far north they raid the nests of threatened marine turtles. In south-west Western Australia, pigs threaten rare plants, particularly plants such as orchids that have underground food storage organs (bulbs, tubers, corms or rhizomes).
- **Habitat degradation:** Digging by feral pigs destroys wetland vegetation and erodes river banks. They impact water quality (increasing turbidity and nutrient levels), spread weeds in their faeces, and alter the composition of plant communities.
- **Competition:** Feral pigs eat all parts of wild plants—including the fruit, seeds, roots, tubers, bulbs and foliage—and may deprive native specialist feeders such as cassowaries (fruit) and brolgas and magpie geese (tubers and bulbs).
- **Disease transmission:** Feral pigs spread diseases to other species, including the plant pathogen *Phytophthora cinnamomi*, and are a reservoir for diseases impacting mammals.

IMPACTS ON OTHER SECTORS

Feral pigs have a major impact on the farming sector, eating new-born lambs, damaging water sources, fences and pasture, and raiding agricultural crops. The costs to farmers amount to more than \$100 million a year.

Pigs are also vectors for diseases and parasites that affect livestock, such as foot-and-mouth disease, leptospirosis and brucellosis. A large foot and mouth disease outbreak in Australia could result in losses of \$50 billion to the cattle industry over 10 years.

As part of a \$66 million program to keep African swine fever out of Australia, the federal government has appointed a National Feral Pig Management Coordinator to lead the development of a national action plan.

THREAT ABATEMENT EFFORTS

Abatement planning

The listing of feral pigs as a KTP by the federal government led to a threat abatement plan (TAP) in 2005. The TAP was reviewed in 2011 and a revised TAP produced in 2017. The 2017 TAP outlines six objectives:

- prioritise key species, ecological communities, ecosystems and locations for strategic feral pig management
- encourage integration of feral pig management into land management activities at regional, state and territory and national levels
- encourage further scientific research into impacts of feral pigs on nationally threatened species and communities, and on feral pig ecology and control
- monitor pig control programs for their effectiveness
- build capacity for management and awareness among landholders and land managers
- improve public awareness about feral pigs and the environmental damage they cause.

Implementation of the TAP is dependent on action by states and territory governments.

State and territory legislation

Feral pigs are listed as pests in all state and territories. In NSW Predation, habitat degradation, competition and disease transmission by feral pigs is listed as one of 39 key threatening processes. Most states and territories have produced strategic plans supporting the federal abatement priorities.

Abatement techniques

Feral pig eradication is only possible in small areas such as islands. Elsewhere, the focus has to be control to protect important conservation assets. Current control options are primarily aerial and ground shooting, baiting and trapping. Lethal baiting is considered the most viable and cost-effective method. Recreational hunting has not been effective, and bounties can create perverse incentives for hunters to maintain rather than reduce populations. Whilst many piglets die of natural causes, it is estimated that 55–70% of a feral

pig population needs to be removed each year to achieve population reduction.

Abatement research

The limited research focus on feral pigs over the past few years has included testing 2 new baits for feral pig control, tracking and surveying pigs in parts of northern Australia, and investigating predation on bogong moths in the Australian Alps.

THREAT ABATEMENT PROGRESS

“One of the greatest impediments to effective pig management at local scales has been the scarcity of detailed information on pig damage and relationships between pig density and damage.”

– Bengsen et al. (2017)

The 2011 review of the 2005 feral pig TAP noted that ‘it is difficult to determine how the work that has been done on feral pigs has abated the threat because of inadequate monitoring and the differentiation of the threat from feral pigs with that from other threatening processes’. The review found that control is patchy; that effective, wide-scale programs to manage pigs are few; and that knowledge of the number of feral pigs that need to be controlled to benefit native species in a particular environment is poor.

The limited progress since then has included the release of a new bait for pigs known as Hog-Gone based on sodium nitrite, which achieved promising results in field trials and is considered more humane than other options.

FeralPigScan (www.feralscan.org.au/feralpigscan), a national monitoring platform for mapping sightings, damage, and control activities, was launched, and training materials to promote more effective abatement were released.

One impediment to abatement has been conflicting perceptions of pigs – as threatening, benign or valued resource. The threat has been exacerbated by hunters shifting to pigs to provide new hunting opportunities.

THREAT ABATEMENT PRIORITIES

A much more ambitious abatement effort is needed to substantially reduce the threat of feral pigs in Australia. Priorities over the next decade should include:

Accord high priority to environmental protection:

There should be a strong focus on environmental as well as agricultural priorities in the proposed National Feral Pig Action Plan, and environmental representation on the national taskforce.

Substantially improve our understanding of feral pigs and the damage they cause: Most studies of feral pig impacts have been observational or had a limited scope. Priorities include investigating pig impacts on inland rivers and wetlands, the relationship between pig numbers and impact levels, whether wild dogs and dingoes can control pig populations, and the effectiveness of different control methods.



A feral pig caught with a wildlife monitoring camera in a Brisbane back yard. Photo: Brisbane City Council | CC BY 2.0

Expand monitoring: We need a better understanding of the distribution and population size and dynamics of feral pigs and the effectiveness of control efforts. This will require deploying a variety of monitoring methods at a landscape scale and coordinating data collection.

Target control efforts: Realistic, cost-effective abatement needs to be sustained at a landscape scale, focused on identified priorities and informed by assessments of its effectiveness. One priority should be eradication of pigs on offshore islands.

Sources & further reading

Bengsen AJ, West P, Krull CR. Feral pigs in Australia and New Zealand: range, trend, management and impacts of an invasive species. *Ecology, Conservation and Management of Wild Pigs and Peccaries*; Melletti, M, Meijaard, E, Eds. 2017; 325–338.

Caley P, Welvaert M. Aestivation dynamics of bogong moths (*Agrotis infusa*) in the Australian Alps and predation by wild pigs (*Sus scrofa*). *Pacific Conservation Biology*. 2018;24: 178–182.

Centre for Invasive Species Solutions. Factsheet: Feral pig biology, ecology and behaviour. 2011. <https://pestsmart.org.au/toolkit-resource/feral-pig-biology-ecology-and-behaviour>

Commonwealth of Australia. Threat Abatement Plan for Predation, habitat degradation, competition and disease transmission by feral pigs. 2017.

Commonwealth of Australia. Background Document: Threat abatement plan for predation, habitat degradation, competition and disease transmission by feral pigs (*Sus scrofa*). 2017.

CSIRO. The impact of feral deer, pigs and goats in Australia. A submission by CSIRO to an inquiry by the Senate Environment and Communications References Committee. 2018.

Department of Agriculture, Water and the Environment. Feral pigs. [https://](https://www.environment.gov.au/biodiversity/invasive-species/feral-animals-australia/feral-pigs)

www.environment.gov.au/biodiversity/invasive-species/feral-animals-australia/feral-pigs

Fordham DA, Georges A, Brook BW. Demographic response of snake-necked turtles correlates with indigenous harvest and feral pig predation in tropical northern Australia. *Journal of Animal Ecology*. 2007; 1231–1243.

Fordham DA, Georges A, Brook BW. Indigenous harvest, exotic pig predation and local persistence of a long-lived vertebrate: managing a tropical freshwater turtle for sustainability and conservation. *Journal of Applied Ecology*. 2008;45: 52–62

Invasive Species Council. The impact of feral deer, pigs and goats in Australia. A submission by the Invasive Species Council to an inquiry by the Senate Environment and Communications References Committee. 2018.

Kearney SG, Carwardine J, Reside AE, Fisher DO, Maron M, Doherty TS, et al. The threats to Australia's imperilled species and implications for a national conservation response. *Pacific Conservation Biology*. 2018;25: 231–244.

Schaffer J, Doupe RG, Lawler IR. What for the future of the Jardine River painted turtle? *Pacific Conservation Biology*. 2009;15: 92–95.

Sharp. T. Model code of practice for the humane control of feral pigs. 2012. Centre for Invasive Species Solutions <https://pestsmart.org.au/toolkit-resource/code-of-practice-feral-pigs/>



If Australians are to protect what is most distinctive about this country – our unique plants, animals and ecological communities – we urgently need to overcome the key threats facing them.

It is not possible to recover all of our threatened species one by one through species-focused efforts. We also need a concerted national focus to overcome the major threats our native plants and animals have in common – in particular **invasive species, climate change, habitat destruction, adverse fire regimes and changes to natural water flows.**

Australia's threat abatement system needs to be more ambitious, better funded and nationally coordinated.