



NATIONAL PARKS ASSOCIATION OF THE ACT INC.

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Senate Standing Committees on Environment and Communications  
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**Submission: Inquiry: The impact of feral deer, pigs and goats in Australia**

Thank you for the opportunity to make a submission to the Senate inquiry into *The impact of feral deer, pigs and goats in Australia*. The National Parks Association of the ACT (“NPA ACT”) is a community-based conservation organisation with more than fifty-five years of working to protect our natural environment through an active outings and work party program; participation in Parkcare activities; an extensive publication program; public meetings and conferences; engagement with government policies and programs and the support of scientific research.

We welcome this inquiry. Feral deer, pigs and goats - together with other introduced feral hard-hooved animals - pose a major threat to Australian biodiversity and their impacts should worsen as their populations spread and increase. The NPA ACT believes that a long-term national research and management focus is needed in response to the impacts of these animals, as they encompass many matters of national environmental significance listed under the *Environment Protection and Biodiversity Conservation (EPBC) Act 1999* – threatened species and ecological communities, world heritage areas and Ramsar wetlands.

This presents several policy and technical challenges common to all three species:

- The fecundity and mobility of these species make them difficult to control – half or more of their populations may need to be killed annually just to prevent population increase. We mostly lack effective affordable large-scale methods for control.
- Our understanding of the impacts of these species is limited.
- The costs of controlling these species over large areas are high and ongoing.
- These species are valuable to certain sectors of society, which undermines the willingness of governments to enact effective threat abatement policies and programs and stymies threat abatement on private and public lands.

As with many other nationally significant threats to nature, the threats of feral deer, pigs and goats raise important questions about how the federal government can more effectively work with the states and territories and use its powers and resources to better protect matters of national environmental significance. We think that the Commonwealth should primarily focus its efforts on national threat abatement processes, including a strong focus on research to

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investigate the full range of impacts of these invasive species and to develop more effective methods of threat abatement. Our views are largely aligned with those of the Invasive Species Council.

More detailed comments on the key areas of the inquiry's terms of reference have been included as Attachment A to this submission.

Should you require any further information please do not hesitate to contact the NPA ACT office, to the attention of Mr Rod Griffiths, convener, NPA ACT Environment Sub-committee or by mobile on 0410 875 731.

Yours sincerely



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**ATTACHMENT A: COMMENTS: SENATE ENQUIRY ON FERAL DEER, GOATS & PIGS**

**A. Occurrence of feral deer, pigs and goats in Australia**

Information on the occurrence of feral deer, pigs and goats within Australia is limited, but the available evidence indicates that the numbers are growing – despite many years of control efforts (eg Invasive Plants and Animals Committee, 2017; Natural Resources Commission, 2016; State of Victoria, 2018).

**Feral deer:** In 2000 it was estimated there were 200,000 feral deer Australia-wide (Moriarty, 2004). Now, the Victorian government estimates there are at least a million deer in that state alone (State of Victoria, 2018). In NSW, the distribution of deer increased by about 30% between 2004 and 2009 and by about 60% between 2009 and 2016 (Natural Resources Commission, 2016; NSW Department of Primary Industries, 2016). In Tasmania fallow deer numbers have tripled since the 1970s and the area occupied has increased five-fold to about 2 million hectares. It has been predicted that under current policy settings fallow deer numbers will increase by 40% over the decade to 2026 and number more than 1 million by mid-century (Lefroy, Johnson, & Bowman, 2016). All species currently occupy less than 5–10% of their potential range, with the exception of rusa (Davis et al, 2016).

**Feral pigs:** Feral pigs currently occupy about half the continent (Department of the Environment and Energy, 2017c). In 1990, they inhabited an estimated 38% of mainland Australia; in 2008, the estimate had increased to 45% (Department of the Environment and Energy, 2017a). Their populations are expanding, and there is potential for further spread, including to large parts of central and eastern Tasmania, Eyre Peninsula, south-eastern South Australia, and south-western Western Australia (Braysher, 2000; Spencer & Hampton, 2005).

**Feral goats:** Feral goat numbers are difficult to estimate because goats are nomadic, occupy terrain difficult to survey, and their numbers fluctuate depending on conditions. The estimated population grew from 1.4 million in 1997 to 4.1 million in 2008 and estimates have ranged up to 6 million (Meat & Livestock Association, 2015; Pople & Froese, 2012). About 70 percent of the population occurs in New South Wales (*Ibid*, 2012).

**B. Biosecurity risks and impacts**

**Environment:** Feral deer, goats and pigs imperil hundreds of threatened plant and animal species and ecological communities, as well as causing extensive landscape degradation. Unless containment and control efforts substantially improve, this damage will escalate as populations spread and densities increase.

Feral deer can severely damage sensitive habitats such as wetlands, riparian areas and mossbeds – among other impacts. The Invasive Species Council (ISC) has compiled evidence of threats to 18 herbivory species and ecological communities within Australia by six feral deer species (sambar, rusa, red, chital, fallow and hog deer), most listed as nationally threatened (ISC, 2011). The Victorian government’s draft deer management strategy reports that more than 1000 plant and animal species in the state are impacted by deer (State of Victoria, 2018). An issues paper by the Victorian National Parks Association, which contains photos of deer damage, has been attached to this submission for reference.

The potential range of each deer species in Australia is far greater than their present distribution, implying much greater damage in future unless they can be contained and controlled. A 2016 pest animal management review by the NSW Natural Resources Commission identified feral deer as the state’s “most important emerging pest animal threat” (NSW Government, 2016).

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Feral pigs impact more than 150 nationally threatened species and ecological communities (Department of the Environment and Energy, 2017c). They eat threatened plant and animal species, severely degrade wetlands and riparian ecosystems, transform habitats, and spread weeds and pathogens.

Feral goats impact more than 50 nationally threatened species, according to the (outdated) [threat abatement plan](#), mostly plant species (Department of the Environment, Water, Heritage and the Arts, 2008b). In New South Wales, feral goats pose a threat to at least 94 threatened species, 59 due to goat grazing and browsing alone (Coutts-Smith *et al.*, n.d.). Where found in high densities, 'feral goats are the most destructive pest animal in the semi-arid and arid regions' (Burrows, 2018).

**Economy:** According to the *Australian Pest Animal Strategy 2017-2027*, the most recent conservative estimate of the national economic impact of pest animals is between \$720 million and \$1 billion annually, particularly in the agriculture sector, in production losses and public and private management costs (Invasive Plants and Animals Committee, 2017).

**Community safety:** Increasing numbers of feral animals imply increasing interactions with community members. In the case of feral deer, road safety concerns are a growing issue. For example, the ISC found that there had been 107 motor vehicle accidents in the Illawara region involving deer, 28 of which resulted in injuries and one death (Cox, 2018).

### **C. Limitations of current laws, policies and practices**

**The critical policy and management processes for feral pest animal management of listing Key Threatening Processes (KTPs) and then developing a Threat Abatement Plan (TAP) are applied inconsistently, poorly implemented and monitored, inadequately funded, and subject to political influence.** This situation adversely affects the efficient and effective management of feral pigs, goats and deer - as well as other harmful animals, such as feral horses and camels – at both national and state levels.

**KTP/TAP development and updating:** The national *Environment Protection and Biodiversity Conservation (EPBC) Act 1999* is intended to provide a national legislative framework for the protection of Australia's environment. The KTPs and TAPs constitute an important element of this framework for the identification and management of introduced animal pest species. However, as a recent analysis by the ISC shows (incorporated into forthcoming ISC submission to enquiry), there are gaps in the KTP listings, many listed threats have no TAP, and many abatement plans are inadequately implemented.

Some examples of gaps and weaknesses include<sup>1</sup>:

- Feral pigs and feral goats are listed as KTPs. There is no KTP for feral deer, but they are mentioned in the 'novel biota' KTP listing. Feral deer are classified as 'game' or 'wild' animals in some states. The NSW government recently legislated to give feral horses (*Equus caballus*) 'heritage protection' in their state, despite a recommendation from the NSW Threatened Species Scientific Committee to list the horses as a KTP.
- There is a current TAP for feral pigs (Department of the Environment and Energy, 2017a), but the TAP for feral goats is several years out of date (Department of the Environment, Water, Heritage and the Arts, 2008b) and there is no TAP for feral deer. Almost a third of all listed KTPs have no TAP.

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<sup>1</sup> Most points are drawn from the 2018 discussion paper prepared by the Invasive Species Council, *KTPs & TAPS: Australia's failure to abate threats to biodiversity*

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- Feral deer are recognised as one of the threats encompassed by the 2013 ‘novel biota’ KTP<sup>2</sup>, but no abatement action has been prepared to date for deer or other threats included under it.
- It took four years to develop the first TAP (2005) for feral pigs, and six years to develop the second TAP (2017) following a review in 2011. The feral goat TAP still has not been revised, despite the review’s findings of shortcomings in techniques for management and for monitoring/measuring impacts on key native species and conclusion that the TAP ‘has not achieved the goal of minimising the impacts of feral goats.’
- Of 15 existing TAPs overall, 60% (9) are more than 6 years old and 27% (4) are 10 years old.

**Monitoring and reporting:** There are few monitoring and reporting requirements for KTPs and TAPs. Progress reviews are required only once every five years and they are not conducted independently. Six KTPs lack a TAP and four TAPs have not been reviewed despite being overdue by one to four years for review (or their reviews have not been made publicly available). Eleven TAPs (52%) have been reviewed at least once, although only three by independent reviewers. Those reviews indicate that good progress was achieved for four TAPs, moderate progress for four TAPs and poor progress for three TAPs. Although fewer than half of KTP listings have resulted in moderate to good progress on threat abatement, the examples of good abatement progress demonstrate that major threats to Australian biodiversity are surmountable (ISC, 2018).

More meaningful, independent and regular reporting is needed. The five-yearly TAP reviews should be carried out by expert reviewers independent of government for the sake of rigour and credibility. An annual progress report (based on meaningful abatement indicators) should be presented to the federal parliament.

**Political influence:** The national system for recognising and abating threats is highly vulnerable to political interference. Although the Australian Government has international obligations to abate threats to biodiversity, there is no obligation under the EPBC Act to list the major threats or act on them. The environment minister has complete discretion about whether to accept the advice of the Threatened Species Scientific Committee to assess a KTP nomination, list a KTP or prepare a TAP. The minister can also delay decisions for years. Even if the minister decides that a TAP should be prepared, the EPBC Act obliges the federal government to do little to implement it, apart from in Commonwealth areas. A KTP listing or TAP also does not generate any obligations for other governments, landholders or anyone whose actions may exacerbate the KTP.

At the state level, some governments appear to have been influenced by narrow interest groups which prioritise narrow private and commercial interests over broader public environmental, agricultural productivity and safety interests. For instance, the management of feral deer has been greatly impeded by their value to recreational hunters. The Australian Deer Association has lobbied against any declaration of deer as pest species and took the Victorian government to court to try to stop the declaration of sambar as a threatening process (Australian Deer Association, 2008). The policies of the New South Wales, Victorian and Tasmanian governments focus on protecting them as a ‘game,’ ‘protected wildlife’ or ‘partly protected’ resource. This restricts the ability of farmers and public

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<sup>2</sup> The term ‘novel biota’ refers to organisms that are new to an ecosystem whether by natural or human introduction. The purpose of this key threatening process (KTP) is to recognise the threat that all novel biota pose to the Australian environment and the continued survival of the native species and ecological communities upon which they impact. (see:<http://www.environment.gov.au/biodiversity/threatened/key-threatening-processes/novel-biota-impact-on-biodiversity>)

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landowners to engage in control strategies, contributing to substantial recent population growth and spread and growing damage to biodiversity, agriculture and human amenity. Experience in the area of feral horse management has been similar. In contrast, Queensland, South Australia, the Northern Territory and Western Australia have all declared feral deer as pest species.

Although the governments protecting deer are now acknowledging the damage they cause and relaxing some of the restrictions on deer control, there is still a long way to go. For example, in 2017, the NSW government rejected the recommendations of the Natural Resources Commission to declare deer a pest species and remove their protection as a game animal (Invasive Species Council, 2016; Natural Resources Commission, 2016; Invasive Species Council, 2017). While the draft Victorian deer management strategy proposes relaxing the requirement for public land managers to get a permit to control deer and containing deer to their current geographic range, where feasible, overall it still mostly maintains the current unacceptable status quo.

Abating the threat of feral goats has been compromised by their commercial value for some graziers, whom also have a certain amount of government support. The NPA ACT supports the position of the Australian Wildlife Management Society (n.d.) that where landholders consider feral goats to be a resource, they should be managed as livestock and 'landowners must take responsibility for their management and its consequences'. Maximum stocking rates should apply, and 'adverse effects on neighbours [and the natural environment] should be eliminated'.

**Coordination and collaboration:** The *Australian Pest Animal Strategy 2017-2027* commendably recognises that managing pest animals requires "a proactive approach, continuous investment and strategic action by a wide range of stakeholders" and shared responsibility between "landholders, industry and community groups, keepers of exotic animals and governments" (Invasive Plants and Animals Committee, 2017). It provides national guidance on best practice in stakeholder collaboration in key areas such as the prevention and management of vertebrate pest animals, as well as the incorporation of 'citizen science' into research and monitoring systems. However, as a non-prescriptive policy guide without detailed actions and performance indicators or a specified budget, it is unclear how it is going meaningfully contribute to strengthening the management of feral deer, pigs, goats or other exotic pests.

Although the federal government is limited in the extent to which it can compel other governments or individuals to undertake threat abatement, it can apply considerable pressure through strong leadership, incentives and funding for abatement, and use of its own laws to partially compensate for state or territory failings. These have been largely missing in KTP/TAP processes. Leadership has improved to some extent with the appointment of a Threatened Species Commissioner as a champion for threatened species and facilitator of partnerships. There is no information about how much Australia spends on abatement (from government and non-government sources), nor how much is needed to properly implement abatement plans.

### **D. Control and Containment Tools**

**Protecting the natural environment and agricultural businesses from feral animals such as deer, pigs and goats is difficult and expensive.** These invasive species are typically highly fecund (capable of producing many offspring) and mobile, making them able to bounce back quickly when some are killed. This means that large numbers of feral animals can be killed with little or no environmental or agricultural benefit. *For example*, one researcher roughly estimated that control programs would probably need to reduce pig populations by at least 70 percent annually to keep their numbers below pre-control levels (McIlroy, 1995). The thresholds for population reduction vary between species, places

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and seasons, but estimates indicate a need to remove half or more a population for most species, if conditions are ideal for the species (eg Caley, 1993; Parkes, Henzell, & Pickles, 1996; Hone, 2002; 2010; Bengsen *et al.*, 2014).

Current options for control of feral deer, pigs and goats are primarily aerial and ground shooting, with some trapping of deer and goats around waterpoints. The control options for pigs are primarily aerial and ground shooting, baiting and trapping. There are no deer baits approved for use in Australia.

**One of the impediments to abating the threats of the three species has been a major reliance on recreational hunting as a control method, particularly for deer.** Hunting organisations have gained increasing access to public land, including national parks, on the premise of the environment benefits of killing feral animals. However, recreational shooting is generally ineffective for controlling feral animals, except over a small area, as too few are killed to overcome the capacity of their populations to quickly rebound. Experience and improved biological knowledge has led experts to endorse a much more targeted and strategic approach, outlined in government codes of practice and standard operating procedures. Skilled recreational shooters can, and do, sometimes contribute to such programs, but most recreational hunting in Australia is ad hoc and does not comply with code of practice requirements.

The Victorian government recently concluded that 'opportunistic ground shooting alone is generally an ineffective means of invasive animal management' (Victorian Government, 2017). The evidence shows that skilled hunters can contribute to effective feral animal control:

- when they participate in professional control programs, supplementing other methods of control such as aerial shooting or baiting
- when they exert sustained pressure over small accessible areas, such as may occur on farms.

**Illegal translocation of feral animals has undermined control and containment efforts.** Abating the threat of feral pigs has been compromised by their value for hunters, which has resulted in them being translocated (illegally) into new areas (Spencer & Hampton, 2005). The continued release of feral pigs for hunting, either in new areas or in areas that they do not currently occupy was identified as a major threat to effective management of feral pigs and their damage by the Department of the Environment and Heritage (2005). A survey in 2000 also found that 58% of deer populations had probably established due to illegal translocation (Moriarty, 2004).

**There is a need to increase understanding of the efficiency and effectiveness of current control methods and to promote innovative approaches to the humane control and containment of these pest animals.** For example, the current TAP for feral pigs identifies the need for further research into the effectiveness of control methods and the development of indicators for how and when to undertake control in a particular region or ecosystem (Department of the Environment and Energy, 2017c). The 2011 review of the 2005 feral pig TAP found that feral pig control is patchy; that effective, wide-scale programs to manage pigs are few; and that there is poor knowledge of the number of feral pigs that need to be controlled to benefit native species in a particular environment. The incorporation of a focus on the humaneness of methods is essential for the welfare of the animals being targeted and also for public acceptance of control.

The Centre for Invasive Species Solutions has recently started work on refining a feed structure developed by the NSW Office of Environment and Heritage that is intended to aggregate feral goats and deer to improve the efficiency of control programs (see <https://invasives.com.au/research/feral-deer-aggregator/>). Such initiatives should be further encouraged.

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### E. Research priorities

**Population dynamics and environmental impacts:** There is still a limited understanding of the population dynamics and environmental impacts of each of the three invasive species. Drawing from the existing TAPs and academic research (eg Davis et al, 2016) and Mitchell (2010), there appear to be knowledge gaps in the following areas:

- Projections and changes in the distribution and abundance of feral deer, pigs and goats
- The relationship of these population dynamics/movements with the level and types of impact within specific areas and ecosystems, including water quality
- The landscape factors, and interactions between these landscape factors, that drive the ecology of these feral animals and their interactions with the environment
- The most efficient, humane, landscape-scale, cost-efficient methods of control that do not harm non-target species (such as species-specific baits and bait delivery techniques)
- Changes in response to control and containment activities

One promising development has been the recent investment in deer research by the Centre for Invasive Species Solutions with \$8.7 million direct and in-kind funding from the Australian, New South Wales, Queensland, Victorian and South Australian governments. This includes research on cost-effective management of feral deer and another on a deer aggregator that is accessible to feral deer but not to native animals (see <https://invasives.com.au/research#pest-animals>).

**Monitoring the effectiveness of threat abatement:** Monitoring should be an essential part of control programs, as stipulated in standard operating procedures, in order to determine whether the intended outcomes are being achieved and whether resources are being well spent. An assessment of 1915 'pest control events' in Australia found that very little is known about the effectiveness of control programs. Two-thirds of the control events were not monitored and consisted of just one treatment area (with no non-treatment areas to act as a control), and 20% included monitoring of the targeted species only. More than 72% did not monitor the effects on the asset being protected (Reddiex & Forsyth, 2006).

**Socio-economic issues:** Social and economic issues are often a major impediment to effective feral animal control. Research is needed on the social and economic factors that stymie and motivate threat abatement action. The costs of inaction by stakeholders needs to be better understood.

### F. Recommendations for Future Threat Abatement Planning

**An effective KTP/TAP system is essential for arresting loss of Australia's biodiversity.** Improved attention to the strategic linkages between different KTP (rather than simply a species-by-species approach) should be an important feature of this process, as many of the issues and needs outlined above are relevant to the management of other hard-hooved animal pests and more than one pest may be causing harmful impacts in an area. Specifically, it is recommended that:

#### **KTP/TAP processes**

- **Systematically list KTPs for all matters of national environmental significance:** The KTP list should be scientifically determined at both the national and state levels, supplemented by a public nomination process to fill gaps.
- Make it mandatory to prepare a TAP which specifies long-term abatement goals and shorter-term targets, the research and actions needed to achieve them and a monitoring regime. If state and

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territory governments fail to participate in implementing TAPs, the federal government should be obliged to consider options for over-riding or compensatory measures. Obligations should extend to individuals and corporations.

- Develop an intergovernmental agreement that commits the federal, state and territory governments to implement threat abatement for key threatening processes and to which the federal government commits a substantial proportion of funding. Consider co-governance models, such as the industry-government partnership models used by Animal Health Australia and Plant Health Australia.
- Provide a base level of funding to implement each TAP and include an estimate of costs to achieve 10–20-year targets. Consider new funding sources to provide long-term base funding for implementing TAPs, such as levies and taxes.
- Legislate under the EPBC Act to oblige individuals and corporations to avoid actions that exacerbate key threatening processes.
- Require monitoring of all KTPs and make an annual report to parliament on abatement progress.

### ***Deer, pigs and goats***

- Prepare a threat abatement plan for feral deer (as well as other high priority invasive species encompassed by the novel biota KTP listing) that prioritises the prevention of further spread of all species of feral deer and the development of effective control methods; this includes the development of an agreement with state and territory governments to adopt a consistent legislative and policy approach to feral deer.
- Prepare an updated threat abatement plan for feral goats.
- Establish a taskforce to drive implementation of the threat abatement plans for feral deer, pigs and goats, with the taskforce consisting of government, non-government and scientific representatives (the feral cat taskforce is a good model).
- As part of threat abatement planning, develop a prioritised national research plan for feral deer, pigs and goats. Likely priorities include the development of more effective and humane control methods and improved understanding of their impacts and of social factors that influence threat abatement.
- Commit national funding to the development of nationally efficient, humane, landscape-scale, cost-efficient methods of control of invasive animals that do not harm non-target species.
- Require that monitoring is incorporated into control programs funded by the federal government.
- Commission the Productivity Commission to assess the long-term funding needed to effectively abate major invasive animal threats to the environment, including feral deer, pigs and goats, and to assess the economic benefits of prevention and early action over later management.

### ***Other***

- Commission an independent investigation of perverse incentives that stymie or undermine prevention of biosecurity risks and abatement of invasive species threats as a basis for developing more effective invasive species policies. This includes policies protecting feral deer as 'game' animals and commercialising the harvest of feral goats.
- Commission an investigation of the ecological consequences of the commercial harvest of feral goats, taking into account the seasonally varying influence of commercial incentives and develop a national policy for commercial feral goat harvesting that supports and does not undermine threat abatement.



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