November 2, 2018

Committee Secretary
Senate Standing Committee on Environment and Communications
PO Box 6100
Parliament House
Canberra ACT 2600
ec.sen@aph.gov.au

**The impact of feral deer, pigs and goats in Australia**
**Submission from the Australian Deer Association Inc.**

## EXECUTIVE SUMMARY

The Australian Deer Association (ADA) is Australia's leading organisation representing the interests of deer hunters, managers and enthusiasts.

ADA members are engaged in deer control, management and monitoring activities with Government agencies in Victoria, Tasmania, South Australia, Western Australia and the Northern Territory, and with private landholders and Non-Government Organisations in all Australian states except the ACT.

In ADA's considerable experience with deer and deer management it has observed that effective management of wild deer in Australia is inhibited by a lack of co-ordination, access, strategy, knowledge of how to best employ the human resource and physical resources such as specialised equipment. Fix these issues and the management of deer will significantly improve.

A position propagated by anti-hunting and anti-deer organisations and people is that wild deer are afforded protection from control by virtue of 'game' status is erroneous. This is not neccesarily the case and need not be – for example, wild deer (other than hog deer) are unprotected on private land in Victoria and the other five species have a 365 day-a-year season and no bag limit. It is quite clear that 'game' classification is not an impediment to effective deer management in Victoria.

Reclassification of deer as a 'pest' species would create additional financial burdens on government and private land managers in terms of compliance for management of deer.

The terms of reference for this inquiry are very broad and the repeated inclusion of the term "potential" leaves the window wide open for alarmism as it allows for a risk to be removed from context and proportion. It is far more valuable to examine likelihood than it is to examine potential.

We believe that all control programs should be underpinned by solid data to quantify the problem, a clear understanding of what needs to be achieved, appropriate resourcing to ensure that targets can be met, and continuous monitoring and review to ensure that programs are meeting expectations.

ADA's experience is that the programs which enable the highest level of flexibility for volunteer hunters (whilst maintaining necessary controls) are the most effective.

The current game regulations provide adequate controls and additional oversight in many cases is unwarranted (e.g. in remote hunting areas) however in some cases oversight and tight management is critical to ensuring program effectiveness and public safety.

Recreational hunting in Australia has an exceptional safety record as is evidenced by data provided from the National Coroners Information System (NCIS).

Any abundant or overabundant vertebrate should be considered for sustainable control programs to protect biodiversity regardless of the legal status or indeed of perceived community attitudes towards the particular species of wildlife.

Conservation wildlife management initiatives should aim to address impacts and if those impacts are spread evenly between introduced animals such as deer and native animals such as kangaroos then treatment activities must be afforded to each species in equally.

There is no clear data to prove or disprove the contention that recreational hunting has a positive impact on biodiversity. There is an apparent correlation between the limitation of access for recreational deer hunters and the local overabundance of deer.

ADA has a longstanding position that public land should be open for recreational hunting in the absence of a good reason for exclusion.

The administration of managed control programs comes at a cost to government and to the volunteer organisations involved. These costs could be significantly reduced if deer were controlled by opening areas to normal recreational hunting where there is no good reason not to do so and directing hunters to target deer in areas of overabundance.

Paid wildlife control measures can be very effective at protecting environmental assets however large-scale control measures using contract shooters can be relatively expensive.

## DISCUSSION

Established in Melbourne in 1969, the Australian Deer Association has established branches in every state and territory of Australia and in several overseas countries.

There is no definitive evidence either to support or to disprove the contention that normal recreational hunting plays a significant role in overabundant wildlife management[1]. However, the recreational deer harvest of 60,000 animals in 2015 must have an impact on the population, and should not be discounted simply because that impact is difficult to quantify.

Anecdotally, it is apparent that in areas where there is reasonable vehicular access and regular hunting pressure, issues typically associated with overabundant deer are reduced or absent. This is especially true in State Forest areas in Eastern Victoria where sambar are regularly hunted by crews using scent-trailing hounds.

In New Zealand, overabundant wildlife management programs have successfully operated, utilising a mix of recreational, commercial and aerial deer culling[2]. It should be noted that the terrain, dominant deer species and cultural attitude towards hunting are vastly different in New Zealand than they are in Australia.

An Australian review recently published by The Mammal Society contemplates the question "Can recreational hunting contribute to pest mammal control on public land in Australia?" It arrives at a conclusion that *"reliable information derived from scientific investigation of real-world situations is urgently needed to support the establishment of rational, agreed, and achievable management objectives. Until such information begins to become available, debate over the roles of recreational hunting as a means of pest management on public lands will continue to be dominated by untested hypotheses, selective half-truths and logical fallacies"*[3] . ADA supports and concurs with this conclusion.

ADA members are engaged in deer control, management and monitoring activities with Government agencies in Victoria, Tasmania, South Australia, Western Australia and the Northern Territory, and with private landholders and Non-Government Organisations in all Australian states except the ACT.

[1] Bengsen A and Sparkes J, February 2016, *Can recreational hunting contribute to pest mammal control on public land in Australia?*, Mammal Review (2016)
[2] Husheer S and Robertson A, 2004, *High intensity deer culling increases growth of Mountain Beech seedlings in New Zealand*, CSIRO Wildlife Research Volume 32
[3] Bengsen A and Sparkes J, February 2016, *Can recreational hunting contribute to pest mammal control on public land in Australia?*, Mammal Review (2016)

The effective management of wild deer in Australia generally, is inhibited by a lack of co-ordination, access, strategy, knowledge of how to best employ the human resource, and physical resources such as specialised equipment. There are also a number of regulatory impediments to the effective management of wild deer in Victoria[4].

It is important that effective management is viewed through the prism of addressing impacts rather than of numbers of animals taken. Reducing numbers is a means to achieving a more fundamental objective[5]. In some areas, a reduction of one or two deer may achieve significant biodiversity outcomes, whereas in other areas, it may be necessary to take a large number of deer to achieve the desired end.

The Generalised Invasion Curve is a useful tool for land managers considering appropriate responses to invasive animal populations[6]. An existing framework (The Victorian Invasive Plants and Animals Policy Framework) sets out the terms for a cohesive, whole of government response to invasive animals. In the foreword to that framework it states:

*"The Victorian Government's approach will be to prevent the entry of new high risk IPA, eradicate those that are at an early stage of establishment and contain where possible species that are beyond eradication and take an asset-based approach to managing widespread invasive species. By working in partnership with relevant industry and communities, we can achieve this goal.*

*An important principle of this approach is that we will invest public money where it produces the most public benefit."*

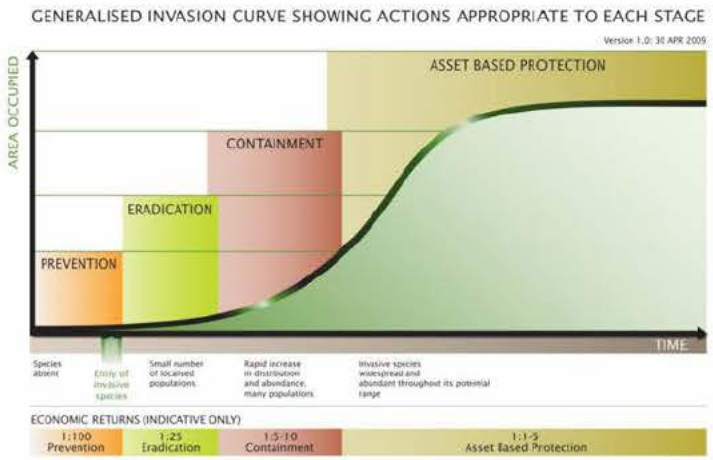


*Figure 1 – Generalised Invasion Curve*

[4] Howlett B, 2016, *Effective management of overabundant wild deer, impediments from a policy, regulatory and stakeholder management perspective*, Proceedings from the Conservation through the sustainable use of wildlife conference 2016, University of Queensland
[5] Decker D, Riley S and Siemer W, 2012, *Human dimensions of wildlife management*, JHU Press
[6] Agriculture Victoria, July 2015, Invasive Plants and Animals Policy Framework, <http://agriculture.vic.gov.au/agriculture/pests-diseases-and-weeds/protecting-victoria-from-pest-animals-and-weeds/invasive-plants-and-animals/invasive-plants-and-animals-policy-framework>

Effective management should also include non-lethal options such as fencing and scent deterrents, as part of an integrated management strategy.

Effective management is not constrained by the legal status of deer. For example, wild deer in Victoria are managed as a game species under the auspices of the Wildlife (Game) Regulations 2012[7] – on public land where deer hunting is permitted, wild deer (other than hog deer) can be hunted up to 365 days a year with no bag limit[8].

A number of groups advocate for wild deer to be classified as pests instead of game animals. The typical rationale for this is that wild deer are somehow afforded protection from control by virtue of game status.

Wild deer (other than hog deer) are unprotected on private land in Victoria under a Governor in Council Order[9]. With the exception of some necessary animal welfare constraints, this order enables private land owners and managers to control wild deer populations on their property as they see fit. Public land managers also have mechanisms to allow them to control wild deer outside of the game regulations. Prohibitions on spotlighting on public land are maintained in the interests of public safety and would not conceivably be removed if deer were to be re-classified.

Whilst a number of groups have an ideologically-based preference for wild deer to be reclassified as a pest animal, there is no evidence to suggest that doing so would aid in management efforts. Pest declarations in South Australia and Queensland have apparently had no impact on the rate of increase of deer populations. Nearly a decade after the removal of game status for wild deer in Queensland, the populations of the four well established wild deer species in that state (red deer, rusa, chital and fallow) are all significantly higher than when they were afforded game status[10].

A paper presented to the Conservation through the Sustainable Use of Wildlife Conference in Brisbane outlined the difficulties in collecting valuable data on hunter effort and success in all of the Australian jurisdictions where wild deer are not afforded game status[11]. In preparing the paper, the authors conducted surveys of Government departments engaged in deer and hunter management across Australia. The paper's co-author, Ellen Freeman, stated: *"The survey results, with the exception of the Northern Territory, showed that wild deer are presenting increasing management issues and there is considerable scope for government departments to have greater engagement with recreational hunters".*

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[7] *Wildlife (Game) Regulations 2012*
[8] Game Management Authority Website, *Deer*, <http://www.gma.vic.gov.au/hunting/deer>
[9] Game Management Authority, July 2014, *Fact Sheet – Control of deer on private property*, <http://www.gma.vic.gov.au/__data/assets/pdf_file/0020/316316/Private-property-June-2014-artwork.pdf>
[10] McGhie C, 2016, *Sustainable use of wild deer under current Queensland legislation – is it achievable?*, Research into deer genetics and environment.
[11] Freeman E and Finch N, 2016, *Regulatory control of deer in Australia*, Central Queensland University

There are some excellent and relevant resources available for communities that have been developed by community groups. An exaple of this is the Information Pack compiled by the Upper Murray Landcare group[12]. It would be valuable for standardised information in this vain to be available nation-wide.

Recreational hunters killed more than 106,000 wild deer in Victoria in 2014[13], an increase from just over 50,000 in 2013[14]. There is a clear sex bias favouring female deer in the harvest.

Animal welfare is an important consideration for hunters. Licensed game hunters are aware of, and bound by, the Code of Practice for the Welfare of Animals in Hunting and the Prevention of Cruelty to Animals Act. Further to legal obligations, hunters take pride in effecting a swift and humane death for their quarry with a 'one shot kill' being the desired conclusion of a hunt. Game hunters regularly practise their marksmanship and have a deep understanding of their quarry's anatomy and the best shot placement to effect a humane death.

Recreational hunting in Australia has an exceptional safety record. In 2010, the Victorian Institute of Forensic Medicine conducted a review of external cause sporting-related fatalities listed on the National Coroners Information System (NCIS) database for the decade between 2000 and 2010. Hunting featured in less than 0.85% of incidents, and land users other than hunters did not feature in any of the hunting related fatalities[15].

Spatial separation – the practice of deer hunters dispersing over a large geographic area, typically in forested terrain with natural barriers such as hills etc., combined with the fact that deer hunters fire relatively few shots at game (an average of 2-3 shots per year, per hunter in the field) and the fact that deer hunters aim at a specified area of their quarry (therefore, positively identifying their target), contribute to recreational hunting's exceptional safety record.

Recreational hunting is an essential element of sustainable use. It is recognised internationally that wildlife conservation and management models based on hunting are the most sustainable and effective[16].

Hunting is an important social, cultural and economic activity. Hunting contributes in excess of $439million annually to the Victorian economy[17] alone.

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[12] Krusche D, April 2016, *Group strikes on feral deer*, The Border Mail, < http://www.bordermail.com.au/story/3863444/group-strikes-on-feral-deer/>
[13] Moloney PD and Turnbull JD, 2018, *Estimates of the 2017 deer harvest in Victoria*, Game Management Authority
[14] Moloney PD and Turnbull JD, 2013, *Estimates of harvest for deer, duck and quail in Victoria: results from surveys of Victorian game Licence holders in 2013*, Arthur Rylah Institute for Environmental Research
[15] Crockett L, August 2010, *Australian External Cause Deaths While Engaged In Hunting Activities between 1 July 2000 – 1st August 2010*, Victorian Institute of Forensic Medicine
[16] Webb G, Cooney R, 16 July 2015, *Trophy hunting for conservation*, The Ethics Centre <http://ethics.org.au/on-ethics/blog/july-2015-(1)/trophy-hunting-for-conservation>
[17] Department of Environment and Primary Industries, 2014, *Estimating the economic impact of hunting in Victoria in 2013*

Hunters as a cohort are generally reflective of society in general. Contrary to commonly held stereotypes, the 'average' hunter lives in a metropolitan area, has a spouse and children, a tertiary education and earns higher than the average wage[18].

We believe that all control programs (whether they are using volunteers or paid shooters) should be underpinned by solid data to quantify the problem, a clear understanding of what needs to be achieved, appropriate resourcing to ensure that targets can be met, and continuous monitoring and review to ensure that programs are meeting expectations. In almost all instances, this should include monitoring of vegetation, monitoring of deer abundance and, in the case of programs utilising volunteers, monitoring of volunteer sentiment. A "checklist" before commencing a program might be:

- Is the problem clearly quantified?
- Is there a clear understanding of what is required to address the problem?
- Is the treatment possible/feasible through simply opening the area in question to recreational hunting?
- Is there robust monitoring of all species of wildlife involved in the undesired impact?
- Is there robust monitoring of the environmental asset which is being impacted?
- Is there adequate resourcing to achieve the desired outcomes?
- Is there monitoring of volunteer and community sentiment?

Sound moderators are widely used internationally by hunters. Moderators reduce the noise emitted from rifles (they do not remove noise entirely), minimising the disturbance of wildlife and the ability of alert wildlife to assess the location of a shooter (consequently increasing the possibility of hunters having the opportunity to take multiple animals). Moderators also reduce 'felt recoil', leading to more accurate shot placement and faster recovery between shots. Moderators also reduce the likelihood of hearing loss for hunters, owing to the reduction in noise levels[19].

Another significant limitation to effective deer management programs is the relative lack of research into the habits, population dynamics, movement and distribution of wild deer in the Australian context. It is not feasible to properly and proactively manage deer without a clear, well-resourced strategy supported by sound and relevant research.

Conservation wildlife management initiatives should aim to address actual, rather than perceived problems, and to reduce impacts, rather than simply focussing on the number of animals removed[20].

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[18] McLennan C, June 2014, *Survey explodes myth hunters are all beer-swilling rednecks*, The Weekly Times < http://www.weeklytimesnow.com.au/news/national/survey-explodes-myth-hunters-are-all-beerswilling-rednecks/news-story/f2c7465c81473b25282967fb408a53c3>

[19] Mac Carthy, O'Neill and Cripps, 2011, *An Investigation into the use of sound moderators on firearms for game and feral management in New South Wales*, Game Council of New South Wales

[20] Natural Resources Management Ministerial Council, 2007, *Australian Pest Animal Strategy*, Department of the Environment and Water Resources

A lack of monitoring and, in many cases, the unaddressed impacts of other overabundant vertebrates (eastern grey kangaroos, swamp wallabies, common wombat, pigs, goats, rabbits, etc.) will limit the ability of control programs to achieve desired outcomes.

Community sentiment, particularly with regards to native animals, influences the willingness of public land managers and governments to engage in lethal control initiatives. A pragmatic approach would see any overabundant vertebrate (native or exotic; protected or pest) managed sustainably to address undesired impacts on environmental assets.

A tendency towards risk aversion, particularly within government departments, also limits the effectiveness of control programs. ADA's experience is that the programs which enable the highest level of flexibility for volunteer hunters (whilst maintaining necessary controls) are the most effective.

ADA has a longstanding position that public land should be open for recreational hunting in the absence of a good reason for exclusion. The administration of managed control programs comes at a cost to government and to the volunteer organisations involved.

Recreational hunters have a broad range of motivations. These are often mixed and occasionally contradictory. Motivations can range from simply going hunting to food harvest, conservation and damage mitigation[21].

The motivation of a hunter practising game management will be very similar to those required to manage overabundant wildlife; the aim of both is sustainability. In his landmark text on the matter, American Wildlife Biologist, Aldo Leopold, defined game management as *"the art of making land produce sustained annual crops of wild game for recreational use[22]"*, whereas nearly a century later, another work by American wildlife biologists described the principles of overabundant wildlife management thus: *"Many of the ecological principles applied in managing "overabundant" populations are the same as those applied in managing positively valued wildlife. The focus is typically on the population ecology of the species of interest. At times there may be concern for whole ecosystems, but usually only as they provide support for the wildlife species of interest.[23]"* In Sharon Levy's 2006 paper 'A Plague of Deer', another North American biologist, Don Waller, is quoted putting the practicalities of overabundant deer management into focus: *"We should be shooting does, not bucks...We should have longer hunting seasons and ask hunters to shoot more than one deer[24]"*.

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[21] Deer Research Project, 2012, Summary of University of Queensland Hunter Survey – Responses to 20 July 2012, University of Queensland, <http://ssaa.org.au/assets/news-resources/hunting/summary-of-university-of-queensland-hunter-survey.pdf>

[22] Leopold A, 1933, *Game Management*, The University of Wisconsin Press

[23] Wagner F and Seal U, 1992, *Values, problems and methodologies in managing overabundant wildlife populations: an overview*, Wildlife 2001

[24] Levy S, September 2006, *A Plague of Deer*, BioScience Vol 56 No 9

There is no clear data to prove or disprove the contention that recreational hunting has a positive impact on biodiversity. There is an apparent correlation in the forests of Eastern Victoria between the limitation of access for recreational deer hunters (either through land tenure or road closures) and the local overabundance of sambar deer.

Paid wildlife control measures can be very effective at protecting environmental assets. Large scale control measures can be relatively expensive.

In New Zealand, where helicopters are widely used in a number of applications (tourism, forestry, aquaculture and horticulture), and, where helicopter-based culling was once commonplace, the practice is increasingly becoming economically unviable[25].

There is currently no poison registered for use on deer in Australia, and there are significant difficulties in developing a widely distributable, humane and species-specific biological control for wild deer.

[25] Warburton B, 2016, *Economic constraints of aerial commercial harvesting to control wild deer in New Zealand*, Presentation to the Conservation through the Sustainable Use of Wildlife Conference, University of Queensland

## RECOMMENDATIONS

- There should be an assessment of public land in Australia from which deer hunting is excluded, with a view to opening all land where there is no good reason to prohibit hunting.

- State-wide strategies should be developed, adopted and properly resourced to sustainably manage wild deer populations. Actions should focus on preventing the establishment of new populations of deer and on protecting high value environmental assets.

- Existing and future deer (and other wildlife) management programs involving public land managers and recreational hunters should be assessed against a series of objective criteria and resourced appropriately. An example of criteria might be:
    - Is the problem clearly quantified?
    - Is there a clear understanding of what is required to address the problem?
    - Is the treatment possible/feasible through simply opening the area in question to recreational hunting?
    - Is there robust monitoring of all species of wildlife involved in the undesired impact?
    - Is there robust monitoring of the environmental asset which is being impacted?
    - Is there adequate resourcing to achieve the desired outcomes?
    - Is there monitoring of volunteer and community sentiment?
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- The use of sound moderators should be made legal for recreational rifle shooters.

- Necessary changes to regulation should be made to allow the processing of wild shot food for human and pet consumption on commercial premises.