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Senate Standing Committees on Environment & Communications
PO Box 6100
Parliament House
Canberra, ACT 2600
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Dear Sir / Madam,

YARRA RANGES COUNCIL SUBMISSION

Yarra Ranges Council welcomes the opportunity to provide comment concerning the Federal Government Senate Enquiry into *'The impact of feral deer, pigs and goats in Australia'*.

Who we are

Yarra Ranges Council is a peri-urban municipality, located on Melbourne's eastern fringe, and covers an area of almost 2,500 square kilometres. It is the seventh largest local government area in Melbourne in terms of population size and largest in geographical area. Importantly, our municipality encompasses 51% of the Yarra Catchment and headwaters of the Dandenong Catchment. Yarra Ranges is highly valued for its agriculture, horticulture and viticulture with an estimated worth of $550 million. Yarra Ranges is also home to important biodiversity that includes threatened species such as the nationally significant Helmeted Honeyeater and Leadbeaters Possum. The landscapes and iconic species such as Lyrebirds in the Dandenong Ranges National Park help attract over 4 million tourists to the region.

Our interest

Invasive species are a significant threat to agriculture and to biodiversity in the Yarra Ranges, with particular community and agency concerns in recent years specifically focussed on the impact of deer. Agricultural industries in our municipality are at threat from rapidly increasing deer populations that reduce yield and values of crops and potentially threaten livestock health. The natural environment is under threat from deer that reduce species diversity, simplify fauna habitats and threaten populations of indigenous plants and animals. The social impacts of deer are also increasing, with vehicle collisions, damage to private land assets, interactions with more populated areas, and potential impacts on vital water catchments all of which have significant economic implications. Whilst the presence and impacts of feral goats and pigs are less understood than deer, given the potential for environmental damage, we strongly support any policy and funding towards controlling their spread nationally. Given the primary concern with deer in Yarra Ranges, they will form the focus of this submission.

The fragmented nature of forests as well as the large edge interface between urban and rural properties increases the impact of invasive species risks, particularly deer in

our municipality. Furthermore, Yarra Ranges Council owns over 600 parcels of freehold land, has management responsibilities for 2,700 kms of crown land roads under the Road Management Act and acts as Committee of Management for Crown Land on a large number of reserves. However, this equates to only 2% of the land area within the municipality, the majority of which is under public land management (Department of Environment, Land, Water & Planning or Parks Victoria), within water catchments managed by Melbourne Water, or in private ownership. This further complicates the management of pest animals, particularly highly mobile species such as Sambar & Fallow Deer across land tenure.

Yarra Ranges Council welcomes the enquiry into the impact of feral deer, goats and pigs in Australia and provides the following comments and recommendations on the Terms of Reference provided:

Inquiry terms of reference

The impact of feral deer, pigs and goats in Australia, and national priorities to prevent the problems worsening for the natural environment, community and farmers, including:

(a) the current and potential occurrence of feral deer, pigs and goats across Australia; and,

(b) the likely and potential biosecurity risks and impacts of feral deer, pigs and goats on the environment, agriculture, community safety and other values;

Deer Distribution in Yarra Ranges

Feral Sambar deer are established throughout the Yarra Ranges area with the largest aggregation of the species ever recorded (worldwide) at Upper Yarra Reservoir in 2008 *(Bennett, A. 2008. The impacts of sambar (Cervus unicolor) in the Yarra Ranges National Park. PHD, The University of Melbourne, Melbourne)*. Fallow deer are abundant in Yellingbo State Park, around the upper Yarra and throughout the Dandenong Ranges. Red deer are known to be breeding in Silvan reservoir. Although not yet found in the Yarra Ranges, the emergence of Rusa deer in northern Victoria have the potential to reach the suburbs of Melbourne, with its enhanced breeding capacity and ability to interbreed with Sambar. It is estimated that the Victorian deer population will grow from 1 million to over 2 million within the next five years (www.abc.net.au/news/2017-03-31/deer-hunters-cull-sambar-deer-in-alpine-national-park/8396774 & *Hone et al, 2010*). Many Yarra Ranges Council reserves have traditionally shown high deer numbers. Fauna monitoring from two ecologically significant council reserves, Wards reserve in Monbulk and Butterfields reserve in Emerald, are showing 4 - 5 times the number of deer in 2018 compared with previous years. Sambar and Fallow are now well established and will be impossible to eradicate from the landscape. 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. As shown by maps of current and potential distribution in Davis et al. (2016), all species except Rusa could occupy almost the entire continent and they currently occupy less than 5–10% of their potential range.

Environmental Impacts

Victoria's draft deer management strategy says more than 1000 plant and animal species are impacted by deer (Victorian Government, 2018). Deer can have a wide ranging impact – a single Sambar deer can travel over 10 kilometres per day and can have a territory of approximately 1,500 hectares during its lifetime. Increasing deer numbers are resulting in growing environmental impacts including degradation of native vegetation, wallow formation, increased streambank erosion, vegetation and soil disturbance facilitating weed spread and direct competition with native herbivores. The

more deer move into Yarra Ranges farming areas, towns and suburbs the higher the cost to local agriculture and the more difficult and expensive their removal becomes.

Deer are a major conservation concern. '*The reduction in biodiversity of native vegetation by Sambar deer*' is listed as a 'potentially threatening process' under the *Flora and Fauna Guarantee Act*.

Heavy deer grazing has been associated with irreversible changes in species composition and forest structure. The removal of woody species leads to a prevalence of ferns in Yarra Ranges wet forests which in turn prevents native woody species regenerating. This has implications to insect functional groups, birds, soil composition and microbial activity. When in high densities deer can remove selected species such as Victorian Christmas bush & Privet mock-olive entirely.

Sambar favor species that give off a scent when rubbed, this has had disastrous effects on the extremely rare Shiny Nematolepis tree, a member of the citrus family endemic to Yarra Ranges National Park. When Shiny Nematolepis was listed as vulnerable under the EPBC Act in 2000 there was no deer damage observed on the one population then known. Sambar numbers then escalated in the Yarra Ranges National Park and within just a few years have rendered the species critically endangered (a Victorian government assessment) despite discovery of a second population, also affected by Sambar. Sambar were recognised as the principal threat to this species in the 2006 recovery plan (Murphy *et al.*, 2006).

Other physical impacts include trampling, soil compaction, gully erosion and wallow formations. Sensitive areas like mossbeds, wetlands and higher altitude bogs in the eastern Yarra Ranges do not have the regenerative capacity to recover from hooved disturbance quickly. In some cases fighting sambar have been recorded as creating patches of bare ground of up to 30m in diameter. Deer create clear paths in dense vegetation, facilitating weed spread and access to introduced predators. Their broad diet, large home range and ability to ingest and excrete viable seed exacerbate their potential as weed dispersers.

The Yarra Ranges Council Ribbons of Green program has been facilitating revegetation to increase connectivity and ecosystem resilience for 10 years. Although revegetation sites are fenced off from stock, deer proof fencing is too expensive in most cases for the land holder & the program. A postal questionnaire revealed that 36% of participants who completed the survey reported pest animals (namely deer, but also rabbits) as the major reason for plant loss. Many local environment groups and private landowners report ceasing revegetation projects in the local area due to the inevitable damage by deer and failure of plants to survive. This has disastrous implications for local ecosystem resilience, particularly in the context of climate change.

Deer directly compete with native herbivore species and Sambar have been shown to negatively affect other native fauna species through habitat modification. In Yarra Ranges National Park the sites with high Sambar densities have been shown to 'reduce small mammal species richness, abundances of small mammals and reptile captures' (Bartlett, R. C. 2012 The impacts of introduced Sambar deer (*Cervus unicolor*) on vertebrate communities in the Yarra Ranges National Park. Masters Thesis, The University of Melbourne, Melbourne).

Social Impacts

Protozoan parasites (*Cryptosporidium* and *Giardia* species) that could cause zoonotic disease in humans have been detected at low levels in deer faecal pellets in Sydney and Melbourne drinking-water catchments. If Melbourne's water supply had to be

treated for Cryptosporidium it is estimated to cost up to $740 million. Melbourne Water is investing significantly into deer control and deterrents within their water catchments in Yarra Ranges currently, with the potential to require significantly more if deer populations cannot be reduced.

Resident communications to council indicate an increasing number of deer - car collisions, with the risk of fatalities from a deer-vehicle collision high. Traffic accidents may pose the largest financial cost of wild deer in the Yarra Ranges. Deer can be 240kg, with a higher centre of gravity than native animals, providing a greater potential to cause serious damage in vehicle collisions and increased likelihood of fatalities. RACV have deer listed as #5 on the most frequently hit animal resulting in a claim. There has been an increase in deer-vehicle-collisions throughout Yarra Ranges causing substantial costs in vehicle repairs and imminent risk of significant injury or fatality.

As deer become more regular around peri-urban parts of Melbourne, we will see more interference with train lines. The costs of deer impacts on the Sydney Railway are estimated to be over $1 million per annum.

Interactions with populous environments also present safety risks, with incidents in neighbouring municipalities including; a male stag being trapped in a school ground requiring euthanasia during school hours, and another deer causing over $100,000 damage to a funeral home.

Economic Impacts

These impacts extend to agricultural enterprises within Yarra Ranges who experience crop losses, trampling and grazing competition with livestock. Yarra Ranges is highly valued for its agriculture, horticulture and viticulture with an estimated worth of $550 million. The most common deer impacts on agricultural properties are damage to fences, trees, pasture, fruit & vegetable crops with particular impact on local Yarra Valley vineyards and strawberry growers. Deer also compete with cattle, sheep and other livestock for pasture. The cost of deer proof fencing is 3 times that of standard stock fencing, and professional shooters are prohibitively expensive for many landowners.

The potential for deer to act as a vector of disease to livestock in the future is concerning. Deer species are closely related ungulates to livestock species including cattle, sheep and goats, they share many parasites and pathogens, including several of major agricultural importance. Although not yet recorded in the Yarra Ranges Council area there are examples in Australia and worldwide of deer harbouring contagious diseases. Deer in Royal National Park (NSW) have been shown to display evidence of exposure to Q fever, leptospirosis, Akabane virus and bovine ephemeral fever virus, in addition to ticks and parasitic helminths. The potential introduction of exotic animal diseases such as foot-and-mouth disease (FMD) is also of concern, with the cost of an FMD outbreak in Australia being estimated at AU$50 billion over a decade. Wild deer could play a significant role in the introduction of surra (blood born parasite transmitted by flies to stock, domestic and native animals), given that rusa deer have been implicated in the transmission of this disease from Indonesia to Papua New Guinea, posing a high biosecurity risk to Australia.

(c) the effectiveness of current state and national laws, policies and practices in limiting spread and mitigating impacts of feral deer, pigs and goats;

The final report of the Environment, Natural Resources and Regional Development Committee (the Parliamentary Committee) into the Control of Invasive Animals on Crown Land was tabled in the Victorian Parliament on 20 June 2017. In its response, the State Government supported the Committee's findings that invasive animals (including deer) are a significant problem in Victoria and that the management of invasive animals is a complex issue. In particular the Government supported in full the recommendation (Recommendation 27) that "*as part of the planned deer management strategy, the Government develop an explicit strategy to contain deer within their current range and limit the spread of deer to new parts of Victoria*."

It is important that the legislation and policy for feral deer management is in alignment across Australia. Allowing Sambar, Fallow, Red and Hog Deer to remain as 'game' under the *Wildlife Act 1975* in Victoria because they are *'already established in the wild in Victoria and beyond eradication with current control methods'*, is inconsistent with best practice pest animal management. In the wild, deer and each of these other animals are invasive pests and should be unequivocally recognised as such. All feral deer species in Victoria need to be declared 'pests' and removed as 'game' under the *Wildlife Act 1975.*

- Deer are now an established, self-sustaining invasive pest in south eastern Australia, with the potential to establish across the entire continent. Protection as a 'game' species is no longer required to maintain recreational hunting opportunities;
- Legislation and policy for invasive species should be consistent across the Nation;
- '*The reduction in biodiversity of native vegetation by Sambar deer'* is listed as a Potentially Threatening Process under the Flora and Fauna Guarantee Act 1988;
- It would support more effective State Government management of deer by resolving the current conflict between managing protected 'game' versus a 'pest';
- It would enable the establishment of a compliance regime to prevent the deliberate transport of pest deer to new areas;

If all deer species are legislated as a pest animals in Victoria, more opportunities for research into alternative control methods are likely to be realised, along with potential funding sources made available. Hunting can remain a useful tool in coordinated control programs, such as those that currently occur in several locations, including National Parks.

(d) the efficacy and welfare implications of currently available control and containment tools and methods, and the potential for new control and containment tools and methods;

Currently, on-ground shooting is the most humane and effective method of deer control but it requires careful regulation to protect public safety. Experienced professional contractors are best suited for this reason and to enable effective, strategic and humane deer control. Deer culling will need to significantly increase to prevent the anticipated population growth and this is well beyond the capacity of amateur recreational hunters to achieve. According to the State Game Management Authority (GMA), recreational hunters reached a high of 100,000 deer culled in 2016. This is well below the estimated 40% rate required according to Hone et al, 2010 ('Estimates of maximum annual population growth rates of mammals and their application in wildlife management' - *Journal of Applied Ecology* 47: 507-514) which equates to 400,000 deer needing to be culled to keep a 1 million population in check.

This methodology is not well suited to the peri-urban areas of Melbourne which are increasingly impacted by deer, given the more populous locations, shooting is not viable nor safe in many cases. Significant funds need to be allocated for professional culling programs, and research into additional control methods is necessary, including; baiting, biological and genetic controls, trapping options, feeding stations and deterrents. We also need to learn from deer management experiences overseas, including: New Zealand, New Caledonia, US and Canada.

(e) priority research questions;

- Safe, targeted and cost effective deer control methods for urban and peri-urban areas where shooting is not viable;
- Documentation of Sambar deer movements and behaviours to assist with control and prevention of deer expansion into environmentally sensitive and peri-urban areas;
- Develop an understanding of deer carrying capacity for each ecosystem, especially if Victoria is to establish the Deer Management Zone model. This is vital for determining appropriate management actions using an asset prioritisation approach;
- Measurements of the collective economic costs of deer, goats and pigs on environmental management, agriculture and social impacts.
- Measure the impact deer, goats and pigs have on ecological resilience in a changing climate and drought conditions;
- Measure the impact drought has on deer, goat and pig population growth;
- Develop national standard monitoring protocols of deer, goat and pig numbers and impacts, to assist land managers to establish their own monitoring, and also to ensure data can be comparative across states.

(f) the benefits of developing and fully implementing national threat abatement plans for feral deer, pigs and goats;

The development of national threat abatement plans for feral deer, pigs and goats is a priority. A federal government lead, intergovernmental agreement with the states and territories to achieve long-term abatement goals for recovery of threatened species and ecological communities, is required. The abatement plans can also ensure that all levels of government have consistent legislation and policy, especially regarding feral deer management. The plan needs to commit to preventing further spread of deer, goats and pigs, acknowledge the limitations of recreational hunting for control and commit to developing more effective control methods.

It is important for the policy and legislation to be consistent at the national, state and territory level to assist landholders, agencies and the community to deal with these pest animals that threaten agricultural production and biodiversity. Enabling legislation that can be used to continue to support the efforts of Local Government, Community and State Government agencies to protect significant agricultural and biodiversity assets is critical. It is important to be able to protect the decades of investment on invasive species management so far and to provide further investment into research that assists in future management programs.

Concluding

Yarra Ranges Council has a strong history in working with agencies and government on strategic policy development and implementation of invasive species management.

We would welcome any opportunities to work with the Federal government and share the experiences of our municipality.

We look forward to the outcomes of the senate enquiry addressing the national deer, goat and pig problem. Should you wish to discuss any details raised in this submission further, please contact Amanda Smith, Co-ordinator Biodiversity Conservation, on
or email

Yours sincerely,

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