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Response by the Victorian National Parks Association to the Draft Deer Management Strategy

Many thanks for the opportunity to respond to the Draft Deer Management Strategy.

The Victorian National Parks Association (VNPA) is an independent member-based organisation, working to improve protection of Victoria's biodiversity and natural areas, across land and water. We see deer management as one of the most serious biodiversity issues the state has faced.

Summary

The VNPA considers that the draft strategy falls far short of an adequate response to the threats deer pose to biodiversity, ecological systems, rural and peri-urban communities and road safety.

The draft strategy starts off quite well, outlining the deer population size (*'between several hundred thousand up to one million or more'*) and gives a brief indication of the level of the impact deer have (*'at least 1080 species of flora and fauna would benefit from deer control efforts'*). However the draft does not appear to grasp the level of the impacts to biodiversity, or outline a strategy that is capable of addressing the problems. While the draft acknowledges that recreational hunting is not the complete answer (*'it can help reduce localised impacts'*) it nevertheless largely relies on the recreational hunting community to solve problems.

Deer are now occupying every terrestrial habitat in the state, from the coastal dunes of East Gippsland to the High Plains, from the dry Mallee to Melbourne's streambanks. We believe the draft condemns Victoria, and the nation, to a rapidly increasing deer population and the considerable environmental, economic and social impacts that that would bring.

Before the framing of a final strategy, DELWP should commission an independent expert panel to assess the impact deer are having on Victoria's biodiversity. It might also be prudent to commission expert assessments of other impacts, including agricultural, peri-urban and social impacts.

VNPA response to the draft

We will address issues in the order set out in the Engage Victoria Website for the draft strategy. Unless otherwise indicated, page numbers below refer to the draft strategy.

Part 1: Overall support for the draft

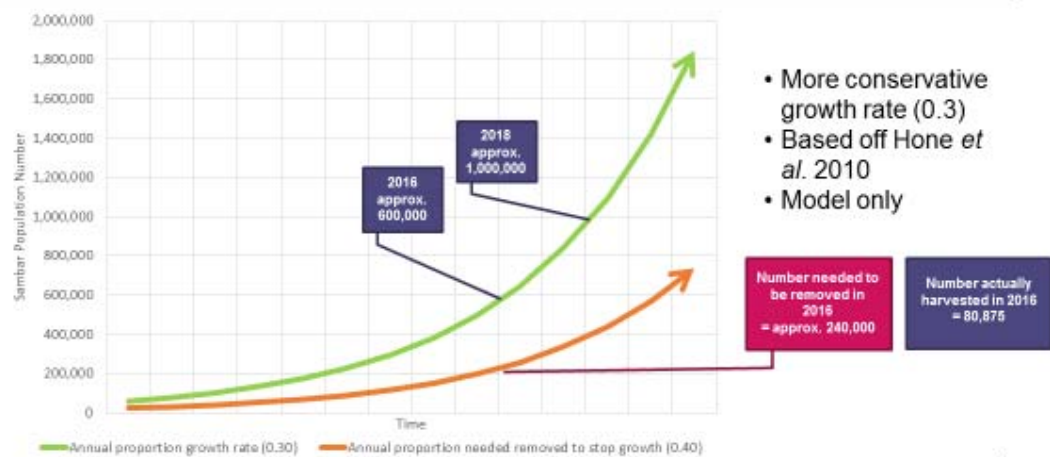
We give the draft only two stars out of five, for a number of reasons, including:

1/ The strategy acknowledges that deer have reached a likely population in Victoria of *'between several hundred thousand up to one million or more'* (p. 10). However it does not

acknowledge the critical likely rate of increase of that population, despite peer-reviewed research indicating a maximum annual population growth rate of Sambar at 55%, and an estimated necessary annual cull of Sambar of 40% just to maintain the current population level. If the deer population is taken to be one million, then 400,000 deer will have to be removed in a year just to hold numbers at current levels. This is an absolute minimum benchmark critical to the development of an effective strategy. Failing to reach such a benchmark will greatly exacerbate the deer problem.¹

We note that maximum reproduction rates for other Victorian deer species vary: e.g. 45% (Fallow), 70% (Rusa), 76% Chital, and 85% (Hog). We also note that in poor conditions (eg the current dry period) rates of increase will be less, however that will, at most, allow only a short reprieve.

Projected Population Growth – Sambar Deer



4 Projected Deer Population and Other Trends
25/05/2018



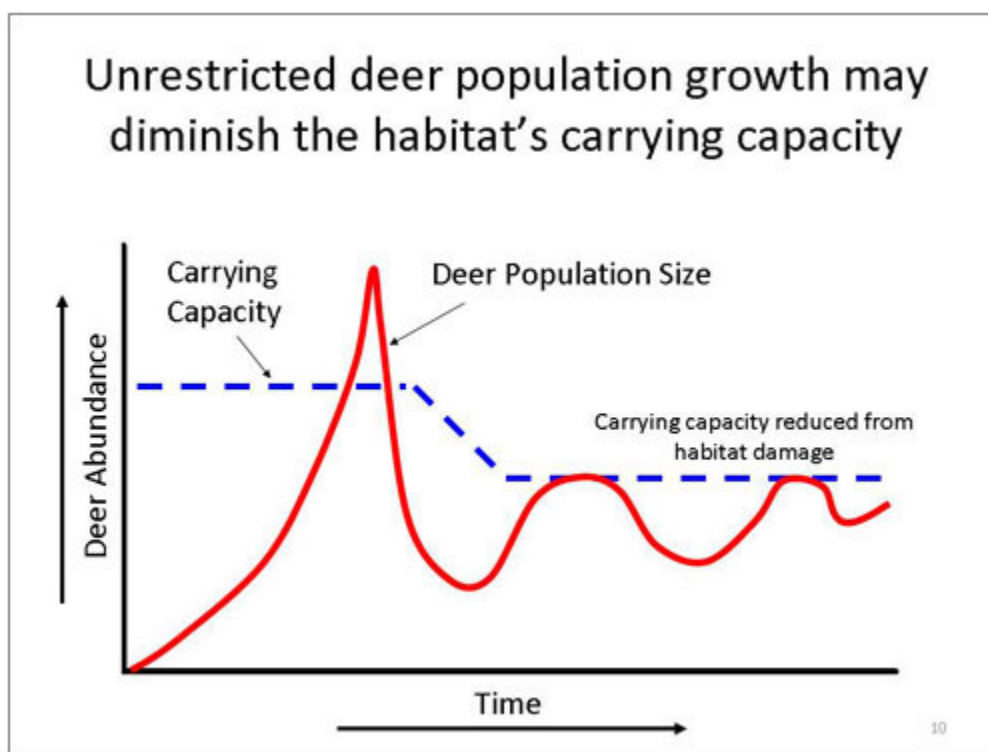
Projected deer population and other trends

Source: Manningham Council presentation, after Hone et al 2010 (full ref. below)

The final strategy must set targets for a significant population decline across the state, based on research such as Hone et al cited above. The end result of a failure of control is the inexorable expansion of deer across Australia, and an eventual reduction in habitat carrying capacity caused by ongoing severe habitat damage.

In other words, any eventual stable deer population is likely to come at the expense of the irreversible decline in condition of native habitats, as indicated in the diagram on the next page.

¹ Jim Hone, Richard Duncan, David Forsyth (2010) Estimates of maximum annual population growth rates of mammals and their application in wildlife management. *Journal of Applied Ecology* 2010, 47, 507-514. <https://besjournals.onlinelibrary.wiley.com/doi/abs/10.1111/j.1365-2664.2010.01812.x>



Source: Mississippi State University Deer Lab
<http://www.msudeerlab.com/mobile/carryingcapacity.asp>

2/ The draft acknowledges many impacts which deer are having on Victoria's biodiversity: 'at least 1080 species of flora and fauna would benefit from deer control efforts across the state' (p. 10). However this does not adequately articulate the level of impact we are hearing from well qualified ecologists, naturalists and other in-the-field observers across Victoria. We appear to be moving beyond just dealing with impacts on listed threatened species and communities, as called for in the FFG listing of Sambar Deer as a *Potentially Threatening Process*. Almost every native plant is browsed by Sambar, including genera such as *Pomaderris* which other browsers normally avoid. Trampling, breaking and ringbarking plants adds to those impacts. A high population of Sambar and other deer species can hinder or significantly block recruitment of whole plant families, leading to long-term ongoing decline in Victoria's ecological systems.



Kurrajong (*Brachychiton populneus*) trees, common in East Gippsland have never been considered vulnerable. They are now joining many trees whose recruitment is being seriously affected by deer. *Photo: Linda Muldoon*

Then there are the impacts of wallowing, especially (but not only) to federally- and state-listed alpine and sub-alpine peat beds.



Sambar deer in typical wallow, Alpine National Park. *Photo: Parks Victoria.*

Rainforest communities across the state are already seriously impacted, often browsed bare from ground level to a deer's reach height, taking out mosses, ferns, fungi and epiphytic orchids etc. (see **Attachment A**). State and federally listed alpine communities, such as moss beds and snowpatch communities, are suffering more than they did under licensed cattle grazing, because deer arrive much earlier each year, soon after snow-melt, when those vegetation communities are at their most vulnerable.



Sambar deer grazing in the FFG-listed Snow Patch community, Bogong High Plains, in spring when the community is most vulnerable.

Photo Zac Walker, La Trobe University/VNPA.

Importantly, the draft fails to acknowledge that deer impacts are an additional stress to already highly stressed systems. Many sources have acknowledged that, faced with fragmentation, an increasing suite of invasive plants and animals and harmful fire regimes, our native ecosystems require increased management of any potentially controllable impacts and the avoidance of any future impacts. Increasing climate change impacts, in

particular, call for greater efforts from land managers to control as many threats as we can, to give ecosystems the necessary increased resilience.²

Deer have now overlaid an additional impact not anticipated by any threat modelling known to us.

3/ The draft strategy does not appear to put much faith in any solutions beyond those largely in the hands of the recreational hunting community, even though the strategy has pointed out that they cannot control the situation. This is expanded on under '*Part 3 Goal 1: Partnerships*' below.

4/ The strategy notes an estimated economic benefit of recreational deer hunting in Victoria ('\$142 million per year' p. 10)), however it does not compare that to the far greater economic benefit of park tourism, currently estimated by Parks Victoria at \$1 billion and 14,000 jobs. In addition parks generate \$244 million of water services (potentially compromised by deer impacts), and at least \$180 million in avoided health costs. https://parkweb.vic.gov.au/data/assets/pdf_file/0008/.../Valuing-Victorias-parks.pdf .

And the strategy does *not* mention the considerable current and future economic burden caused by to the growing population of deer, resulting in:

- The decrease in quality and extent of viable habitats, and the impact on a large range of individual species, resulting in increasing management costs.
- The destruction of publicly funded revegetation projects and decades of achievement by volunteer-run revegetation programs across the state.
- Catchment impacts, such as water quality and erosion.
- Road accidents (both financial and human impacts)
- The engagement of police, the Game Management Authority and park rangers in the control of both legal and, increasingly, illegal hunting, etc.

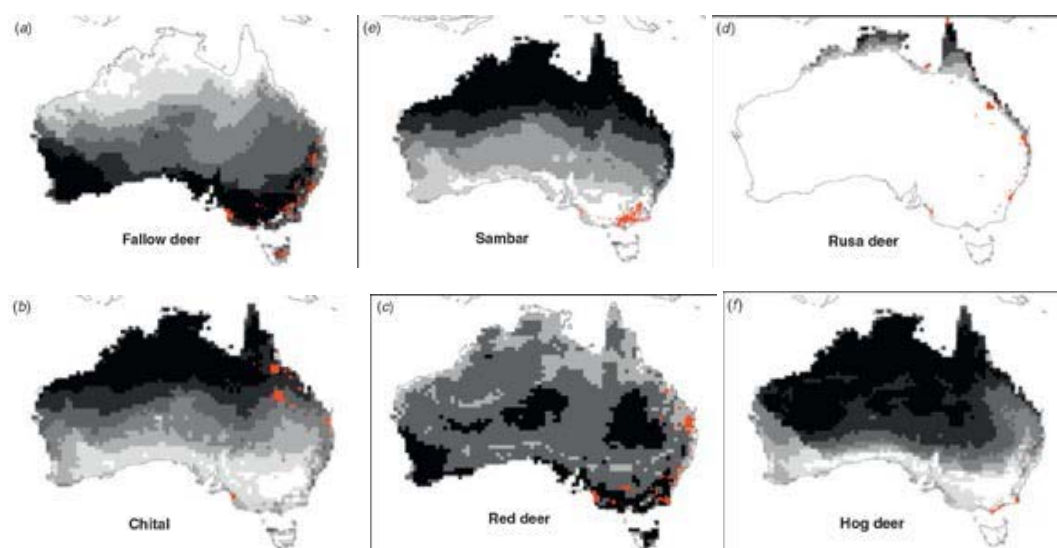
By only indicating one positive economic angle (hunting tourism), the draft frames itself as a hunting promotion strategy. Recreational hunting has a role, but in the development of a deer management strategy for Victoria all current and future economic drivers should be identified and objectively assessed.

5/ The draft also fails to acknowledge the extent to which the six species of deer in Victoria have the capacity to occupy most of the nation. Deer species can spread across the continent, possibly quite quickly given current population levels. It will be an invasion rivalling cane toads in its seriousness.

In the following diagrams (see next page), current (i.e.2016) distribution of each species is indicated in red, and potential national distribution expressed as greyscale.

² Dunlop, M., & Brown, P.R. 2008. Implications of climate change for Australia's National Reserve System: A preliminary assessment. Report to the Department of Climate Change, February 2008. Department of Climate Change, Canberra, Australia. <http://www.environment.gov.au/system/files/resources/917bb661-b626-44bb-bd52-325645ae7c49/files/nrs-report.pdf>

Current (red) and projected (greyscale) distribution of deer in Australia



From: Davis et al. A systematic review of the impacts and management of introduced deer (family Cervidae) in Australia. CSIRO 2016. <http://www.publish.csiro.au/wr/wr16148>

Engagement with the federal government, and with Australian states and territories, should be a significant part of the development of the final strategy. Any inadequate Victorian strategy will look very weak in the face of future threats to the nation.

Deer are an invader the like of which Victoria has not experienced before. They are truly Victoria's cane toads.

6/ We strongly support the draft's intention to remove the anachronistic obligation of public land managers to apply for an authorisation under the Wildlife Act to control deer. That requirement should never have been in place.

Part 2: Establishing different management zones for deer.

We support the establishment of management zones for deer, indeed it is an essential element in most land management programs. However it is not at all clear how that will look, and how the zones will be decided. We expected that the draft would have had a series of zones for comment (as happens routinely in draft national park management plans), but the draft strategy doesn't even outline the 'decision-making framework' for establishing zones – that will not appear until the final strategy, with the actual management zones appearing sometime later still.

It is clear to us that the five zones, as articulated on p 15, and based on the diagram on p. 23, will not adequately address the deer problem. Without a process to reduce deer numbers overall, management control is surrendered.

We are happy with the idea of **Prevention** and **Eradication** zones, However as long as 'landholders discretion' (p.15) operates in regard to compliance and/or co-operation, the zones' objectives remain unachievable.

The **Containment** zone has confused and generally weak objectives (e.g. "any increase in density is undesirable"). Again, landholder compliance is important here (as for other invasive species). The strategy must set clear targets for a radical reduction in deer numbers.

We do not agree with the inclusion of a **Resource Management** zone, and can't imagine where it could be situated without impinging on the cost-effectiveness, or simply the effectiveness, of managing the other zones. We do agree that if such a zone was in place, it should include the capacity for land managers to undertake *“deer control where needed to protect high value social, environmental and cultural assets”* (p. 15), including any assets in adjacent zones.

The **Asset Protection** zone (where *‘impacts of established wild deer populations on priority assets’* are to be reduced) is sensible, but we are not at all convinced that the zone will be applied in a way that will adequately protect Victoria's biodiversity. For a start, the *‘Example management actions’* are not as strong as they should be, as they leave out the application of targeted baits for deer etc. (See Part 3 Goal 1 below)

In this regard the strategy has ignored well established international benchmarks in environmental asset management: the long-term protection of relatively intact ecosystems in national parks and conservation reserves.

The draft claims that the location of management zones (including the Asset Protection zones) will be guided by DELWP's Strategic Management Prospects mapping. We have a lot of respect for DELWP's *Nature Print* based *Strategic Management Prospects* mapping, except for issues of scale and transparency. And it must be applied within the context of our already legislated zoning system: primarily Victoria's national and state parks and other established conservation reserves. Otherwise the identification of 'management prospects' could become enslaved to any shrinking biodiversity management budget and its 'cost-effective' application.

To put that another way, there is world-wide agreement, indeed acclaim, for the establishment of comprehensive, adequate (i.e. large) and representative reserve systems. It would be very brave of DELWP to actually replace those existing priority management zones (our parks and reserves) with an untested priority system that has never been subject to peer review.

There is a considerable body of legislation, both State and Federal, that must govern the proposed deer management plan, but these laws are not reflected, let alone adhered to, in the draft. Some of those legal obligations are listed below.

Victoria's **National Parks Act (1975)** offers the highest level of protection for natural systems in the state. It gives protection to all native species and natural systems within national and State parks, whether threatened or not. According to the Act, the 'objects' are:

“(a) to make provision, in respect of national parks, State parks, marine national parks and marine sanctuaries—

- (i) for the preservation and protection of the natural environment including wilderness areas and remote and natural areas in those parks;*
- (ii) for the protection and preservation of indigenous flora and fauna and of features of scenic or archaeological, ecological, geological, historic or other scientific interest in those parks; and*
- (iii) for the study of ecology, geology, botany, zoology and other **sciences** relating to the conservation of the natural environment in those parks; and*
- (iv) for the responsible management of the land in those parks;*

- (aa) to make further provision in respect of designated water supply catchment areas in national parks—
- (i) for the protection of those areas; and
 - (ii) for the maintenance of the water quality and otherwise for the protection of the water resources in those areas; and
 - (iii) for the restriction of human activity in those areas for the purposes of subparagraphs (i) and (ii);”

These ‘objects’ are clarified in “the Secretary’s” obligations (now Parks Victoria’s obligations) under the Act (with our underlining):

- “(a) ensure that each national park and State park is controlled and managed, in accordance with the objects of this Act, in a manner that will—
- (i) preserve and protect the park in its natural condition for the use, enjoyment and education of the public;
 - (ii) preserve and protect indigenous flora and fauna in the park;
 - (iii) exterminate or control exotic fauna in the park;
 - (iv) eradicate or control exotic flora in the park; and
 - (v) preserve and protect wilderness areas in the park and features in the park of scenic, archaeological, ecological, geological, historic or other scientific interest;
- (aa) have regard to all classes of management actions that may be implemented for the purposes of maintaining and improving the ecological function of the park;
- (b) ensure that appropriate and sufficient measures are taken to protect each national park and State park from injury by fire;
- (ba) ensure that appropriate and sufficient measures are taken (including seeking the making of an appropriate agreement under section 321(1)) —
- (i) to protect designated water supply catchment areas; and
 - (ii) to maintain the water quality of and otherwise protect the water resources in those areas; and
 - (iii) to restrict human activity in those areas for the purposes of subparagraphs (i) and (ii);
- (c) promote and encourage the use and enjoyment of national parks and State parks by the public and the understanding and recognition of the purpose and significance of national parks and State parks; and
- (d) prepare a plan of management in respect of each national park and State park.”

Notably, the N.P. Act requires the extermination or control of exotic fauna in national and state parks. It also requires the protection of a park in its ‘natural condition’, and the protection of ‘indigenous flora and fauna’. In other words, the parks’ managers are not only required to secure long-term protection for listed threatened species, but all of the parks’ species in their natural condition.

While the N.P. Act, as outlined above, offers the highest level of protection to the protected areas in question, there are a number of other Acts of Parliament, Federal and State, that must also be taken into account.

The Federal **Environment Protection and Biodiversity (EPBC) Act** gives National Heritage status to Victoria's Alpine, Baw Baw, Mount Buffalo and Snowy River National Parks and the Avon Wilderness. The citation for that listing includes:

"The Alps are one of eleven sites recognised in Australia by the IUCN as a major world centre of plant diversity... The AANP is a vital refuge for alpine and sub-alpine flora and fauna species, with a high level of richness and endemism across a wide range of taxa, and therefore has outstanding value to the nation for encompassing a significant and unique component of Australia's biological heritage."

Importantly in the context of this submission, the citation adds that:

"The AANP has outstanding heritage value for the scientific research that has taken place since the 1830s, demonstrated by the density and continuity of scientific endeavour."

The results of that scientific endeavour should not be underestimated, and certainly not ignored, in the development of Victoria's deer management strategy. In this regard, we strongly recommend that the DELWP/DEDJTR team engage with alpine ecologists in the development of the final strategy.

And both the Federal EPBC Act and the Victoria's **Flora and Fauna (FFG) Act** list a considerable number of threatened species and communities relevant to the plan. It would be sensible (and educational, see NP Act objects (a) (iii) above) to list all of those species and communities, as well as the full **DELWP advisory list**, as an appendix to the final strategy.

The FFG Act, lists a large number of threatened species and vegetation communities that are currently being significantly impacted by deer, and at least three relevant threatening processes:

- Reduction in biodiversity of native vegetation by Sambar (*Cervus unicolor*).
- Degradation of native riparian vegetation along Victorian rivers and streams
- Wetland loss and degradation as a result of change in water regime, dredging, draining, filling and grazing.

We note here that under the **IUCN and World Commission on Protected Areas (WCPA)** system of classifying different protected areas, national parks have a particularly high level of protection. They are:

"...large natural or near natural areas set aside to protect large-scale ecological processes, along with the complement of species and ecosystems characteristic of the area, which also provide a foundation for environmentally and culturally compatible, spiritual, scientific, educational, recreational, and visitor opportunities."

We also note the words of IUCN Director General, Julia Marton-Lefèvre, in Nov 2012:

"Protected areas have been a cornerstone of IUCN's work since its foundation in 1948, and that of our World Commission on Protected Areas – the world's premier body of protected areas experts and professionals.

From a handful of national parks at the turn of the 20th century, today we have over 160,000 protected areas, covering 12.7% of the world's land surface.

It is a truly remarkable global estate that remains a fundamental strategy to conserve biodiversity and ecosystem services, with multiple benefits to people.

Simply put, large healthy protected ecosystems are the best tool we have to conserve biodiversity, especially against the backdrop of climate change.

We are in the middle of a global extinction crisis, with rates of biodiversity loss up to 1,000 times above pre-human levels. This depletes our natural capital and undermines sustainability at a planetary, as well as local, scale.

Well managed protected areas are the most robust proven solution to turn the tide of extinction.”

http://www.iucn.org/about/work/programmes/gpap_home/pas_gpap/gpap_perspective/?11555/Putting-Protected-Areas-to-Work-to-Address-Global-Challenges

The critical role played by National parks is also recognised in the **International Convention on Biological Diversity** which Australia signed in 1992 and ratified in 1993. According to Article 8 of the Convention (in-situ Conservation), signatories must, among other things:

- *Establish a system of protected areas or areas where special measures need to be taken to conserve biological diversity;*
- *Promote the protection of ecosystems, natural habitats and the maintenance of viable populations of species in natural surroundings;*
- *Rehabilitate and restore degraded ecosystems and promote the recovery of threatened species, inter alia, through the development and implementation of plans or other management strategies;*
- *Prevent the introduction of, control or eradicate those alien species which threaten ecosystems, habitats or species;*
- *Develop or maintain necessary legislation and/or other regulatory provisions for the protection of threatened species and populations. etc.*

All of the above obligations set clear criteria for establishing Asset Protection Zones. Given that national and state parks have long been identified (nationally and internationally) as worthy of the highest levels of protection, and given that that high level of protection is secured in Victorian legislation (the National Parks Act 1975), those parks should be a starting point for the establishment of zones requiring extirpation and/or control of deer. Other legislated conservation reserves, and all FFG- or EPBC-listed threatened EVCs should also be included as high protection areas.

We agree with the statement (p. 17) that areas where deer control will be most profitable include “*where the control of other herbivores is occurring and [there are] benefits of aligning deer control with these programs*”. This reinforces the alignment of asset protection with parks. In the Alpine National Park, for example, Parks Victoria’s goat and pig control programs are now joined by a strong feral horse control strategy. A range of herbivore management programs and other complementary pest management programs take place in most national and state parks.

Any modelling, such as DELWP’s Strategic Management Prospects mapping, that identifies additional areas deserving of particular attention should also be included as Asset Protection zones.

Not unrelated to the identification of zones is the manner in which the ‘Generalised Invasion Curve’ diagram (p.23) is applied. While it is best to deal with invasive animals at the ‘prevention’ and ‘eradication’ phases, the failure to deal with the main populations of deer

(Sambar in the east, Red in the Grampians and Fallow generally), is not a reason to avoid significantly reducing the overall population, because:

- Rainforests (including littoral rainforests, dry rainforests, and a range of cool temperate and warm temperate rainforests) scattered in hundreds of highly vulnerable sites throughout eastern and south-western Victoria, cannot be adequately protected unless deer population numbers are greatly reduced throughout the state.
See **“Attachment A”** to this submission: a map of the distribution of rainforest areas in eastern Victoria.
- Pressure on highly vulnerable areas such as the alpine/sub-alpine regions will remain expensive to manage in the long-term while they are surrounded by high deer populations at lower elevations.
- Many other EVCs are threatened by deer.
- Ongoing Containment, Eradication and Prevention zone management costs will remain very high unless the overall deer population is greatly reduced.



Victoria’s rainforests are the last remnants of the ancient Gondwanan forests that once covered the landscape. They have been a significant attraction for tourists and other park visitors.

Photo: Phil Ingamells



Deer wallow and heavy browsing in Cool Temperate Rainforest, Monbulk Creek.



Lake Tyers Coastal Park, showing deer browse line in Coastal Warm Temperate Rainforest.

Photo: Tom Crook.



Left: Littoral Rainforest (EPBC listed as critically endangered) at Lake Bunga, part of the Lakes Entrance /Lake Tyers Coastal Reserve. The rubbed trees are mostly Yellowwood (*Acronychia oblongifolia*) listed as Rare under FFG Ac, and endemic to eastern Australia. Photo: Tom Crook.

Right: Fern Gully, Garfield North, adjacent to Bunyip State Park, where deer browsing has greatly depleted understory and affected many plants including epiphytic orchids and the rare filmy fern *Abrodictyum caudatum*.

Photo: Alan Forte

Peri-urban and urban areas are not adequately addressed in the zoning scheme. They pose a series of management problems, including public safety, that need answers. Control of deer

populations feeding into peri-urban/urban areas must be an important management consideration.

Part 3 Goal 1: Enhancing deer management through partnerships.

Government agencies have a clear responsibility to manage threats, especially on public land, but also across all land tenures. They are the essential element of any 'partnership'. A significant ramp-up of Government funding is inevitable if the deer problem is to be controlled.

We support management partnerships with Traditional Owner groups, including increased employment opportunities.

We support programs involving accredited amateur shooters, as part of strategic programs managed and supervised by Parks Victoria in national parks and other public land.

We acknowledge that recreational hunting can contribute to the reduction in deer numbers in many areas, but they are only one part of the partnership mix. However we do not agree to any extension of public land already available to recreational hunting. Hunters have access to a very large part of the state already, and can have a negative impact on other park visitors and public land users, especially in national and state parks and other reserves. Note the considerable and growing economic value of park tourism (c. \$ 1 billion) mentioned above. And we support the possible role of a pet food industry etc. as part of the strategy.

Professional pest controllers should be employed as a significant component of management programs. They have the skills, and the necessary equipment (e.g. noise suppressors), and authorisations to operate at night etc. There is ample capacity among the more experienced recreational hunting fraternity to increase the capacity of the professional pest control industry over time. We note that Parks Victoria is currently conducting aerial deer control trials; aerial shooting has been practiced widely in New Zealand for years, and also put to use in NSW, SA and elsewhere in the world. We expect it will remain one of several necessary tools in the deer control toolbox.

We understand that a deliverable bait for deer is in the process of development by the Centre for Invasive Species Solutions, based on their already marketed feral goat 'aggregator'. The final strategy should outline the ways in which targeted baiting can be used strategically across Victoria, in readiness for when the deliverable bait can be rolled out.

Research into possible biological or genetic controls should be encouraged and supported, and into any other research and/management options such as employing native predators (i.e. dingoes), trapping options, lures etc.

Part 3 Goal 2: Reduce impacts on environmental, agricultural, cultural and social assets:

These are good aims, but the draft strategy will not achieve them.

We have indicated some of the environmental impacts above, but an independent expert assessment of deer impacts necessary before the final strategy is shaped. Management of Victoria's great natural heritage should be aimed at reversing declines in the condition of

ecosystems, not simply reducing impacts. This is especially true, given climate impacts, and the additional huge impact deer are now having.

It is not the VNPA's role to assess agricultural impacts, but we do not think they have been adequately identified in the draft. Nor have the considerable cultural and social impacts been identified and adequately addressed, such as farm invasions of deer and rogue deer hunters.

The growing road safety issue is mentioned, but "investigate and/or trial measures to reduce deer vehicle accidents in hot spots" is not a strategy. The final strategy should not be produced until the "establishment of a collision register" (p.19) and the growing road safety problem has been transparently assessed. We are sure the problem will be found to be more extensive than a few manageable 'hot spots'. Resolution of the road safety issue will only occur when deer numbers are substantially reduced overall.

Part 3 Goal 3: Increase awareness, understanding and capacity to manage deer

Community education about deer issues is an important path towards management success, however the draft seems to have unreasonable expectations of the effectiveness of awareness in the absence of other strategies/tools. Throughout the 'Goals, actions and deliverables' section, a large number of 'Deliverable' actions are largely or entirely things like '*encouraging community involvement*'. These 'encouragement' deliverables are included in points: 1.2.1; 1.2.2; 1.3.2; 1.4.2; 2.1.3; 3.1.4; 4.1.1; 4.1.2; 4.3.1; 4.3.2; 4.3.3; 4.3.4. We have made suggestions for additional strategies for many of these elsewhere.

Re Goal 3:

3.1.3, yes, the economic impacts of deer populations should be assessed, but **before** any final strategy is decided!

3.2.1, yes, an information pack should be in plain English, but also in other languages as appropriate.

Part 3 Goal 4: Reduce illegal deer hunting

The greatly increased deer population is the single biggest factor encouraging illegal and irresponsible hunting. The draft does not address that effectively.

- The strategy needs to acknowledge that the high deer population is the main factor encouraging illegal/rogue hunting.
- Heavy penalties should be introduced for illegal hunting, in addition to promoting "a culture of compliance" (p. 21: 4.3.1).
- Heavy penalties should be established for anyone translocating deer (and pigs or any other invasive species) to new locations. Police road checks of vehicles able to carry live deer should be established. Penalties, and budgets for compliance operations, should reflect the economic costs caused by the introduction of new populations of deer.

Additional comments

- All deer (including Hog Deer) should have all legislated protections removed, and be classified as a pest animal. Any complications that that might bring (such as accessing deer for recreational hunting in some areas, or particularly onerous

obligations on farmers) could be covered by supplementary legislation if necessary. It is quite anachronous that the most damaging feral animal in the state is offered protection in law.

- The 2017 Parliamentary Inquiry into the Control of Invasive Animals on Crown Land included a recommendation that one government body should have overall responsibility for pest animal control in Victoria. That body should be DELWP.
- Deer should not be referred to as a 'resource'. They are a threat.
- Any reference to maintaining a 'quality' hunting experience should not appear without explanation. In our understanding, the traditional experience of a deer hunter – tracking a wary deer through the bush and matching the hunter's skill against the deer's – is now unavailable due to the very high abundance of deer.
- The potential economic and social costs through the spread of diseases has not been seriously addressed in the draft. Note should be taken of a foot-and-mouth outbreak in California, because deer (White-tail deer in this case) were clearly a vector, and also because the Californians demonstrated an admirable capacity for wild deer control. The 1924 California foot-and mouth outbreak treatment included the killing of over 100,000 domestic (stock) animals, and 22,214 deer in one area of the Stanislaus National Forest, in the Sierras.

"At various times, from one hundred to four hundred hunters were housed in some forty-three separate camps scattered throughout the mountains. Adding to the difficulties of finding and killing the deer amid some of the most rugged terrain in the West was the outraged opposition of local hunters, whose threats against government officials led to a temporary suspension of the operation in September. A few days later the hunt resumed, however, and continued until November, when snowstorms drove both deer and hunters to lower altitudes where the systematic slaughter continued throughout the winter. By June 1925 more than twenty-two thousand deer had been killed, of which a little over 10 percent were infected with foot-and-mouth disease. The national forests of the sierras remained under quarantine and were not reopened until June 1926, a year after the last infected deer was killed."

From: Managing a National Crisis: The 1924 Foot-and-Mouth Disease Outbreak in California
by Kendrik A. Clements. California History. Vol 84 Number 3 Spring 2007.

Finally, we re-iterate that DELWP should commission an independent expert panel to assess the impact deer are having on Victoria's biodiversity, *before* the final strategy is developed. It might also be prudent to commission expert assessments of other impacts, including agricultural and social and economic impacts. But control measures should not wait for that.

1 November 2018

For further information:
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