



Draft Deer Management Strategy

FOR PUBLIC CONSULTATION

Consultation process

The Department of Environment, Land, Water and Planning (DELWP) and the Department of Economic Development, Jobs, Transport and Resources (DEDJTR) are seeking public input into the development of a Deer Management Strategy for Victoria.

You can provide feedback on the *Draft Deer Management Strategy* (draft strategy) online at engage.vic.gov.au/draft-victorian-deer-management-strategy

Targeted stakeholder consultation was sought in the development of the draft strategy through correspondence, workshops, forums and one-on-one communication. Feedback received provided important context to the deer management challenge, helped focus the direction of the draft strategy and highlighted opportunities for collaboration.

All information on the draft strategy, including how you can provide your input, can be found online at engage.vic.gov.au

Your feedback is needed to inform and shape the final strategy and ensure it meets the needs and expectations of the community regarding deer management.

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Summary

The draft strategy is an important step toward providing a clear and coordinated approach to deer management in Victoria. It recognises the need to reduce the impact of deer on environmental, agricultural, social, economic and cultural assets. It also recognises that deer are a valuable hunting resource.

While it is not possible to eradicate deer from the Victorian environment, there is an opportunity to provide a coordinated approach to managing their positive and negative impacts.

The draft strategy has been jointly developed by DEDJTR and DELWP with the assistance of an Advisory Group, comprised of representatives from DEDJTR, DELWP, Parks Victoria and the Game Management Authority (GMA).

The draft strategy is a key action under the *Sustainable Hunting Action Plan* (SHAP) and supports *Protecting Victoria's Environment – Biodiversity 2037*. It is also a key action under the *Biodiversity 2037 Implementation Framework* and is consistent with the Victorian Government's response to the 2017 Environment, Natural Resources and Regional Development Committee of Parliament's Inquiry into the control of invasive animals on Crown land.

The draft strategy proposes a new way of thinking to guide how deer are managed in our landscape. It is structured around four key goals:

- Enhancing deer management through partnerships and community collaboration
- Reducing the impact of deer on key environmental, agricultural, cultural and social assets
- Increasing awareness, understanding and capacity to manage deer
- Reducing illegal deer hunting.

A series of key actions and deliverables are proposed to achieve each goal.

The introduction of deer management zones to guide deer management across the State is proposed to provide a coordinated, strategic and adaptive approach to deer management. The location of the deer management zones will be informed by available knowledge on assets at risk from deer and developed in consultation with Traditional Owners and local communities.

Successful implementation of the final strategy will result in a more coordinated approach to deer management in partnership with the community, a reduction in the negative impacts of deer, better utilisation of the economic benefits of deer and the knowledge and capacity to inform effective deer management going forward.

The public consultation process is an opportunity for the community to inform and shape the final strategy and ensure it meets their needs and expectations regarding deer management.



The challenge

Deer management in Victoria is a complex issue and to date has lacked a clear and coordinated approach to managing the positive or negative impacts associated with their established presence in the landscape.

Sambar, Fallow, Red and Hog deer are well established in Victoria and populations are continuing to increase, causing damage and spreading to new areas across Victoria at a rapid rate. It is not feasible to eradicate these species from the landscape using available control methods.

Therefore, management needs to focus on minimising the negative impacts of deer, containing deer to their current geographic range, where feasible, protecting high priority biodiversity, social, economic, agricultural and cultural assets, and maximising the positives that can be gained from their presence.



Current action

The Victorian Government has recognised the need for a more coordinated and focused approach to deer management by committing to develop a deer management strategy through the SHAP and the Biodiversity 2037 Implementation Framework.

The Draft Strategy identifies the actions which would shape future initiatives and resourcing priorities, and opportunities for collaborative investment by government agencies and partners across private tenure.

The Victorian Government has already implemented many SHAP actions which complement the draft strategy including:

- Regulatory amendments that remove barriers to the commercial processing of wild harvested deer
- Expanding the area available for deer hunting in the Alpine National Park by approximately 90,000 hectares and allowing all species of deer to be hunted in areas where Sambar Deer can be hunted
- Funding of \$300,000 over four years to the Australian Deer Association, through Parks Victoria, to help control deer in parks
- Funding of \$440,000 over four years to the Firearms Safety Foundation (Victoria) to develop firearm safety information, including for illegal deer hunting
- Funding of \$85,000 to the Federation of Victorian Traditional Owner Corporations to lead development of a *Traditional Owner Game Management Strategy*
- Ongoing work with hunting stakeholders to deliver the *RESPECT: Hunt Responsibly* program
- Development of a *Game Management Research Strategy*
- Publication and distribution to all game licence holders of *Game Hunting in Victoria – A manual for responsible and sustainable hunting*.

Biodiversity 2037 recognises the significant consequences that introduced species such as deer have on Victoria's native animal and plant species. The draft strategy will contribute to achieving the *Biodiversity 2037* state-wide target of a "net improvement in the outlook across all species by 2037".

The Victorian Government has allocated \$86.3 million to implement *Biodiversity 2037*. This includes funding for 85 new projects for on-ground biodiversity action worth \$33.67 million, and four new projects for marine environment projects worth \$1.1 million. A key component of this is the development of collaborative projects involving agencies, Traditional Owners, non-government organisations and the community as part of Biodiversity Response Planning that will help deliver on the threat management targets in the Biodiversity Plan, including deer control. Deer control projects include:

- \$624,000 for deer control in the Grampians
- \$230,000 for extirpation of Sambar Deer from Wilson's Promontory
- \$500,000 for deer management at Lake Tyers.

Funded projects will be delivered over three years, commencing in 2018–2019 through to 2021.

Parks Victoria is currently delivering joint invasive animal control programs, including deer control, across the Alpine, Mitchell River, Wilsons Promontory, Grampians, Kinglake and Dandenong Ranges National Parks and Yellingbo Nature Conservation Reserve.

Melbourne Water is also undertaking deer control at two water reservoirs near Melbourne to protect water quality. Catchment Management Authorities, Landcare, Local Government and other community and conservation groups undertake various other activities including deer control, provision of deer information to private landowners, community forums and deer exclusion fencing demonstrations.

A new approach to deer management: a snapshot

The draft strategy proposes a new way of thinking to guide how deer are managed in our landscape that requires a partnership approach between all levels of Government, Traditional Owners, conservation and community groups, Landcare, water authorities, Catchment Management Authorities, hunting organisations, hunters, the deer farming industry, commercial deer harvest industry and the community.

VISION

Deer management in Victoria protects environmental, agricultural, social and cultural assets from the impacts of deer and provides diverse, quality hunting opportunities

GOALS



ACTIONS



Figure 1. Our Vision, Goals and Actions

The actions and deliverables outlined in the draft strategy will form part of an Implementation Plan which will be released with the final strategy.

The draft strategy proposes the introduction of a deer management zone framework to guide deer management in Victoria. The deer management zones are described at a concept level and a key action of the draft strategy is to undertake further work to refine how the deer management zone framework will be developed and implemented.

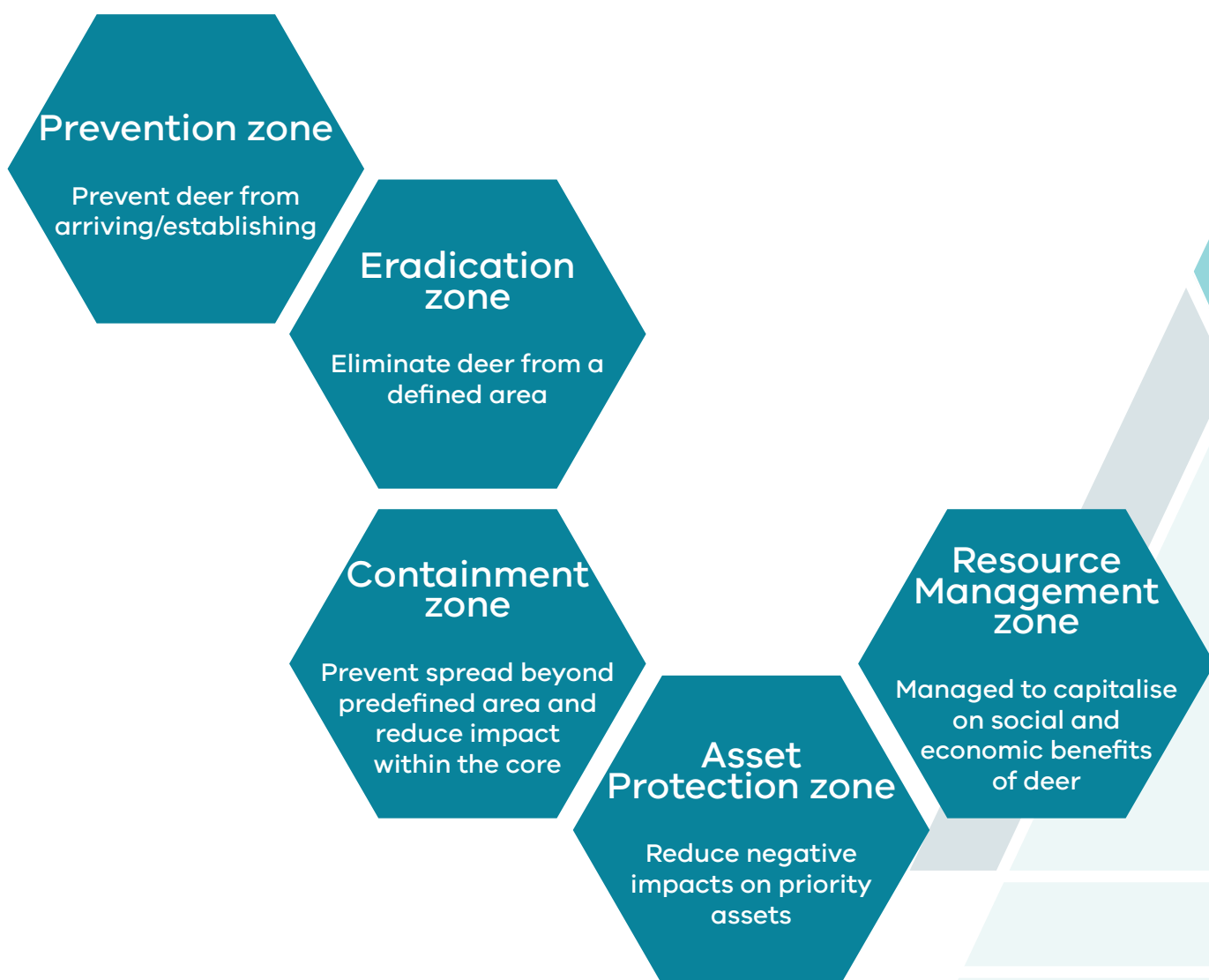


Figure 2. Proposed zone frameworks

Guiding principles

The development of the draft strategy has been informed by the following principles.

- ▶ Deer management is a shared responsibility involving the community, land managers, Traditional Owners, hunters, the commercial deer harvest industry and all levels of government.
- ▶ The Victorian Government recognises the need to reduce the impact of deer on environmental, agricultural, social, economic and cultural assets and that deer can provide a valuable hunting resource.
- ▶ Stakeholders share many values in relation to deer management, including a desire for public safety and healthy ecosystems. Divergent stakeholder views are acknowledged and respected.
- ▶ Deer management requires a coordinated and integrated approach supported by scientific research, collaboration, information sharing, evidence-based planning and on-ground action.
- ▶ Deer control and hunting are managed to ensure human safety, compliance with relevant laws and to minimise adverse animal welfare outcomes.
- ▶ Deer management will be guided by Victoria's existing approach to investment in biosecurity (i.e. the invasive species curve – see Appendix A).
- ▶ Illegal hunting will not be tolerated.



Deer in Victoria

HABITAT AND DISTRIBUTION

Four species (Sambar, Fallow, Red and Hog deer) are well established in Victoria and are present throughout large areas of the state (see Appendix B). Combined, the four species are estimated to number between several hundred thousand up to one million wild animals or more.

Anecdotal reports and hunting records suggest that the distribution and abundance of several species, in particular Sambar and Fallow deer, has rapidly increased in recent years, with fire, urbanisation and deliberate releases possible causes. It is unknown how climate change will affect the distribution and abundance of deer in Victoria.

The four species frequent many different habitat types from heavy forest, rough mountainous terrain to more open-country including semi-open scrublands, pine plantations and open grazing land. Some species are also increasingly found in peri-urban and urban areas.

POSITIVE IMPACTS

Recreational hunting

Deer hunting is a recreational activity enjoyed by approximately 37,000 licensed Victorian deer hunters.

A 2013 study estimated the direct and indirect contribution of deer hunting to the Victorian economy to be around \$142 million per year. Much of this benefit is realised in Victoria's regional communities. An estimated 106,000 deer were harvested by recreational hunters in 2017, a number that has increased significantly over recent years. Deer hunters value deer as a hunting resource, supporting a popular and expanding industry that contributes to the economy of regional Victoria. The draft strategy acknowledges this contribution and proposes several actions to improve the deer hunting experience in Victoria and increase hunter involvement in control programs.

Commercial use

Recent regulatory changes to the commercial processing and use of wild deer have been made through the SHAP. This is expected to create a commercial harvesting industry in Victoria. Legislative changes that will allow deer hunters to have wild deer processed (butchered) for personal use, are also being progressed.

NEGATIVE IMPACTS

A wide range of negative environmental, economic and social impacts have been attributed to wild deer. Deer impact natural and agricultural systems through browsing and grazing, antler rubbing, trampling, trail creation and wallowing. During the breeding period (rut) these impacts are more prevalent. Each of the four established species have slightly different impacts due to species diet and habitat preference.

Biodiversity

Deer pose a significant risk to biodiversity, causing both direct and indirect impacts on native flora and fauna. Occurrences and severity of impacts on high value biodiversity assets have increased over the last decade, placing increasing pressure on threatened species and communities. Sambar Deer were listed as a potentially threatening process to native vegetation under the *Flora and Fauna Guarantee Act 1988* in 2007, with this species considered a threat, at that time, to at least 13 threatened flora species and 11 threatened ecological communities, including Alpine Sphagnum Bogs and associated fens. Current DELWP data and analysis also suggests that at least 1080 species of flora and fauna would benefit from deer control efforts across the state.

Agriculture

While there is a lack of quantitative evidence on the impacts of deer on agriculture, deer have been reported to cause damage to a wide variety of agricultural crops (including cereal, fruit and vegetables) and pastural systems, vineyards and plantations. Other negative impacts on primary production include fouling of pasture, crops and water, spread of weed and soil borne disease and damage to infrastructure including fences and nets. There are also anecdotal reports that deer compete with livestock for feed and rutting sambar harass cattle.

The draft strategy proposes an action to quantify the economic impacts of deer on agricultural assets, as well as environmental, cultural and social assets. New management and control methods to help minimise the negative impacts of deer will also be investigated and trialed.

Disease vectors

Deer are also potential vectors of livestock disease such as foot-and-mouth, and parasites that can contaminate drinking water reservoirs, e.g. Cryptosporidium.

Peri-urban

As deer distribution and abundance increase, deer sightings and reports of public safety risk are becoming more common, particularly in peri-urban areas. Impacts that have been observed include deer-vehicle collisions and damage to infrastructure. In these densely populated areas, deer are a growing public concern, appearing in backyards, schools and other public places.

Cultural heritage

There is also concern over potential damage to cultural heritage sites. It is important that Traditional Owners are involved in identifying how and where deer may be impacting on areas or values of significance and what the most appropriate strategies are to protect them.

Illegal hunting

Illegal hunter behaviour is a significant issue, particularly in rural and regional communities, with reports of illegal spotlighting, trespass, firearm offences, damage to assets and loss of stock. It tarnishes the image of lawful recreational hunting and reduces the likelihood of private landowners utilising the services of hunters to reduce the impacts of deer. The draft strategy provides a clear message that illegal deer hunting is not tolerated in Victoria.

COMMUNITY VALUES

There are a broad range of values associated with deer and their management, including different views on the type and extent of action required. Figure 3 summarises the positive and negative values associated with deer the community wishes to promote or limit.

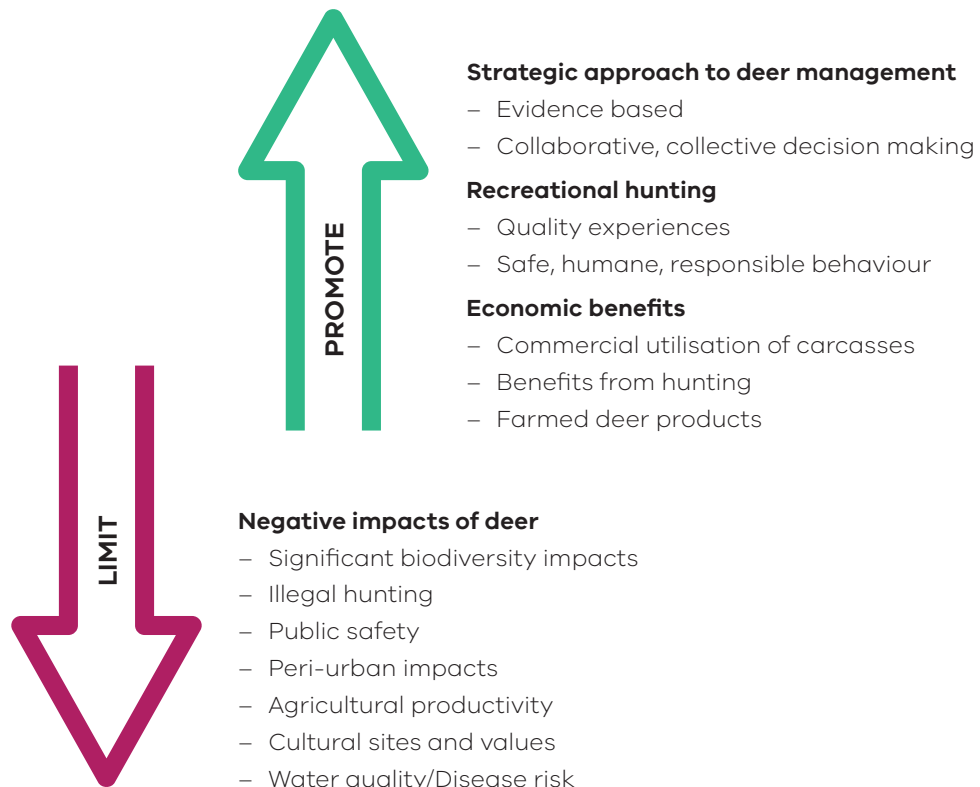


Figure 3. Positive and negative values associated with deer

Control of problem deer in Victoria

CONTROL METHODS

The primary control method for deer is shooting, which is carried out by professional shooters, accredited volunteers or recreational hunters. Shooting under spotlight is permitted on private land under certain conditions with the landowner's consent and permitted on public land under authorisation. Shooting is commonly conducted on the ground, but aerial shooting has been used successfully in NSW and will be trialled in Victoria. Exclusion fencing may also be used to protect specific assets. Other control options such as trapping, repellents and baiting are not currently suitable or available.

PUBLIC LAND

Deer control on public land is primarily managed using professional shooters or accredited volunteers as part of a strategic control program. Such programs currently focus on protecting key biodiversity assets from the impacts of deer.

Public land managers, such as Parks Victoria and local government, are currently required to apply for authorisation under the Wildlife Act to manage deer on public land. This is an unnecessary regulatory burden that is proposed to be removed under this draft strategy.

PRIVATE LAND

On private land, deer are unprotected under certain circumstances where they are causing damage (except for Hog deer). This means deer on private property can be controlled using a firearm, allowing landowners to destroy problem deer without the need for a game licence or permit, including under spotlight at night. Landowners who do not wish to or are unable to shoot deer themselves, can utilise recreational hunters, farm assist programs through hunting organisations, or employ professional shooters for this purpose.

With the development of a commercial deer harvest industry, landowners will also be able to call on the services of commercial harvesters to control and remove problem deer. Alternative control methods, such as exclusion fencing may also be used to protect private assets such as crops, gardens and vineyards.

RECREATIONAL HUNTING

Chital, Fallow, Hog, Red, Rusa and Sambar deer are declared as 'game' which allows them to be hunted by licensed recreational hunters.

Regulations are in place to set minimum standards for the methods of hunting to maintain public safety and ensure animal welfare is not compromised. Except for Hog deer, there are no limits on the number of deer that can be harvested and, in most cases, deer can be hunted year-round.

Deer can be hunted in State forest, certain forest parks (Cobboboonee and Otway) and other unoccupied Crown land (such as Crown land that is not leased or licensed); leased Crown land (with permission of the lessee), licensed Crown Land; some state game reserves and private land (with permission of the landowner/manager). Deer can also be hunted in some National, State, Coastal and Wilderness Parks, subject to varying conditions.

While recreational hunters provide a readily available and free service to assist with control programs, recreational hunting on its own is not an effective means of eradicating deer, although it can help reduce localised impacts of deer.

MANAGEMENT CHALLENGES

Management of problem deer is restricted by the limited number of control options available. Information on options and the cost of each is also limited. Shooting and exclusion fencing are the most commonly used control methods, however, public safety risks can limit the use of firearms in some situations and fencing is costly. There is a need to undertake research and trial alternative methods of deer control.

Management of problem deer in peri-urban areas can be challenging, due to restrictions on firearm use, limited availability of other control methods and a wide range of land tenures that make coordinated control difficult. Opportunities exist to educate land managers on appropriate control options and better understand road safety issues and how they can be mitigated.

Traditional Owner involvement in deer management is currently limited. As custodians of the land, Traditional Owners attach great social, economic and spiritual value to the plants and animals on their Country. Native title determinations and settlement agreements recognise the relationship Traditional Owners have with their lands and waters and recognise them as equal partners in the management of Victoria's natural resources. There is a need for more Traditional Owner involvement in deer management to limit impacts on their cultural values and create opportunities for involvement in management.

There are many knowledge gaps in relation to deer management. Examples of knowledge gaps are presented in Appendix C and should be considered priorities for research. However, the absence of this information should not preclude action from being undertaken.



The status of deer

Chital, Fallow, Hog, Red, Rusa, Sambar, Sika, and Wapiti Deer are defined as protected wildlife under the *Wildlife Act 1975*. Hog, Red, Sambar, Fallow, Rusa and Chital Deer are further defined as game, which means they can be hunted by licensed game hunters. All other species of deer are declared as prohibited pest animals.

Some members of the community believe that this classification as 'game' does not accurately recognise deer as an invasive species that requires management.

This matter was investigated by the Environment, Natural Resources and Regional Development Committee of Parliament in 2017. The Committee found the game classification, and the exemption that allows the destruction of deer on private land, does not restrict the ability of landowners and land managers from controlling deer. Indeed, a wider range of management outcomes can be achieved by managing the established species as game, than can be achieved under a pest status.

The classification of game deer as a pest would place a legal requirement on land owners to take all reasonable steps to prevent the spread of, and as far as possible eradicate deer from their properties. This will create a financial burden on land owners not already undertaking control. Also, declaration as a pest animal would mean that recreational hunting of deer would no longer be permitted in areas managed under the *National Parks Act 1975* where hunting is currently permitted. It would also remove the recreational hunting and private land laws which help ensure destruction is humane and safe.

Consistent with this, the draft strategy does not propose classifying the established deer species (Hog, Red, Sambar and Fallow Deer) as pest species. However, an action of the strategy is to review the classification of deer species not present or established (Chital, Rusa, Wapiti, Sika) and investigate their transition to prohibited pest animals.

The legal status of deer under Victorian legislation is summarised below.

Status	Legislation	Deer species	Intent/Obligation
Protected wildlife	<i>Wildlife Act 1975</i>	Chital, Fallow, Hog, Red, Rusa, Sambar, Sika, Sika-Red hybrids and Wapiti	Offence to hunt, take, or destroy protected wildlife unless authorised.
Game Species	<i>Wildlife Act 1975</i>	Chital, Fallow, Hog, Red, Rusa and Sambar	Can be hunted by licensed game hunters according to prescribed methods, seasons (Hog deer only) and time of day.
Problem deer on private land (unprotected species)	<i>Governor in Council Order under the Wildlife Act 1975</i>	All deer species, except Hog deer	Problem deer on private property can be controlled without a licence or permit.
Prohibited pest animal	<i>Catchment and Land Protection Act 1994</i>	All species except: Chital, Fallow, Hog, Red, Rusa, Sambar, Sika, Sika-Red hybrids and Wapiti	This declaration prohibits the bringing into Victoria, keeping, selling, or releasing of these animals without a permit. Government has a responsibility to take all reasonable steps to control prohibited pest animals on any land in the State.
Exotic fauna	<i>National Parks Act 1975</i>	All species of deer	The <i>National Parks Act 1975</i> requires the extermination or control of exotic fauna (including deer) in National and State parks, the eradication or control of non-indigenous fauna in Wilderness Parks and the control of exotic fauna in all other parks reserved under the Act.
Potentially threatening process	<i>Flora and Fauna Guarantee Act 1988</i>	Sambar deer	Recognises that Sambar deer pose a significant threat to the survival and evolutionary development of numerous plant taxa and ecological communities.

The opportunity for change

The Management Zone Framework

WHY MANAGEMENT ZONES?

A coordinated, strategic and adaptive approach to deer management is required. Establishing a deer management zone approach is an important step to achieve this. This approach will enable stakeholders and land managers to identify community values or priority assets requiring protection and associated management objectives.

What are the management zones?

Zone	Management objective	Description	Example management actions	Land tenure
Prevention	Prevent deer from arriving and/or establishing	Areas where deer are not yet present or established within a predefined area.	Surveillance to detect new incursions Immediate removal of new populations if detected	Public and private land (at landholders discretion)
Eradication	Eliminate all deer from a defined area	Areas where small, isolated populations are present, densities are low, eradication is feasible, and the likelihood of re-establishment is low.	Intensive, targeted control program to remove deer Surveillance and monitoring	Public and private land (at landholders discretion)
Containment	Prevent the further spread and establishment of deer beyond a predefined area (core population) and reduce the impact within the core	Areas where eradication may not be feasible, but the expansion of populations and any increase in density is undesirable.	Remove outlying (satellite) populations through a targeted control program. Reduce/maintain low deer densities and prevent range expansion through integrated management (e.g. targeted control program, cultural and recreational hunting)	Public and private land (at landholder discretion).
Asset Protection	Reduce the negative impacts of established wild deer populations on priority assets	Areas where deer are well established, and eradication is not feasible. Management efforts are focused on protecting priority environmental, agricultural, social or cultural assets. Control areas must be practical and feasible for real reductions to be achieved.	Lower deer densities through intensive and targeted management such as an integrated approach using ground and aerial control programs, targeted recreational hunting, cultural hunting, and fencing of sensitive sites	Public and private land (at landholders discretion)
Resource management	Deer are managed to take advantage of their social and economic benefits (e.g. hunting)	Areas not identified as a high priority for deer control. Recreational hunting provides a base level of 'control' however this doesn't preclude land managers from undertaking deer control where needed to protect high value social, environmental and cultural assets.	Alternative harvest regimes e.g. see Action 1.4.1 could be trialled in this zone	Public land and private land (at landholders discretion)

How will the management zones be applied?

Management zones will be applied at a regional scale so that the relevant zones meet the needs and priorities of local communities. Management to reduce deer impacts will be focussed on the highest priority areas, with priority given to threatened species and ecological communities under imminent risk from the impacts of deer.

The management zones will only be applied to game deer species, and not deer declared as pest animals under the *Catchment and Land Protection Act 1994* (the CALP Act). Species declared under the CALP Act will be managed in accordance with the provisions of the CALP Act. Management zones will be developed for each of the game deer species.

The management zones guide on-ground management of deer and prioritise areas for Victorian Government investment in deer control. The management zones will not change the legal status of any land in Victoria and are not intended to influence land status. The management zones will not impact on Traditional Owner rights or obligations under Traditional Owner Settlement Agreements or Native Title determinations. Recreational hunting will continue to be permitted in areas where it currently occurs and land owners/managers can continue to carry out control programs and activities at their own discretion.

Asset protection zones can be overlaid on other zones such as containment zones and resource management zones, to prioritise the value of such assets. Hunting may occur in multiple zones where deer hunting is permitted (e.g. resource management zones, containment zones and asset protection zones) either on a recreational basis or as part of an integrated management approach.

Figure 4 shows an example of how the management zones work together. It is for illustrative purposes only and not indicative of where management zones will be located.

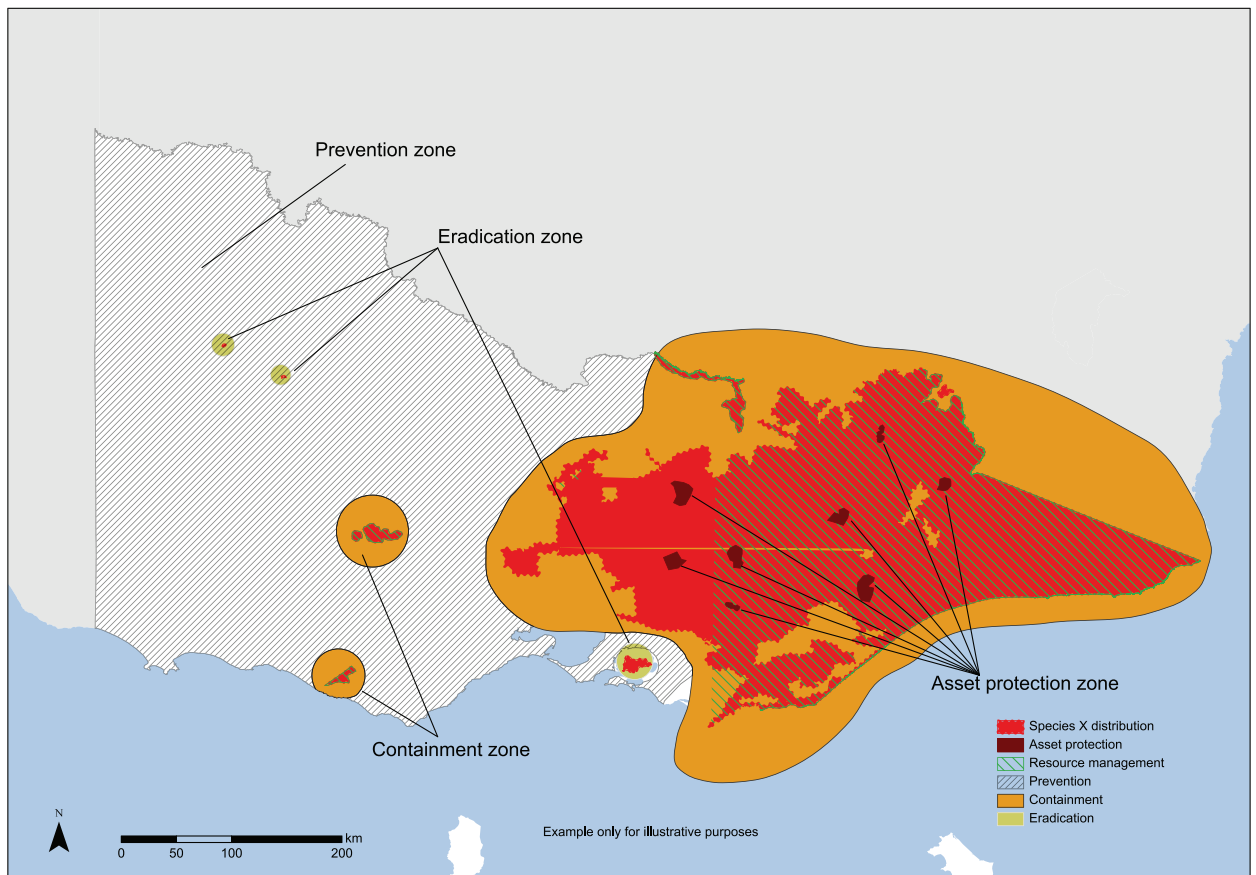


Figure 4. Example of how management zones work.

1. The Strategic Management Prospects tool is designed to help biodiversity managers consider and compare which actions to do where to achieve the most benefits for the most species. See www.environment.vic.gov.au/biodiversity/natureprint

How will the location of management zones be determined?

The location of the management zones will not be determined in the final strategy. A key action of the draft strategy will be the development of a decision-making framework which will outline the process for management zone determination, including information requirements and sources, the process for community consultation, accountability and monitoring and evaluation requirements. The framework will be informed by deer distribution, available science and information on assets impacted by deer, and management cost-effectiveness.

The location of management zones will be determined in consultation with the community through ongoing forums guided by the decision-making framework. Consideration will be given to identifying the areas in Victoria where it is most cost-effective to undertake deer control to benefit as many assets as possible, including multiples species and ecological communities. DELWP's Strategic Management Prospects' will be a key input for informing where deer control is most beneficial to protect biodiversity assets, including, for example, identifying where the control of other introduced herbivores is occurring and the benefits of aligning deer control with these programs. The Decision-Making Framework will consider opportunities to link with the Biodiversity Response Planning process established under the *Biodiversity Plan 2037*.

How will the management zones be reviewed?

Management zones will be reviewed in consultation with the local community periodically, as determined in the decision-making framework. There will also be the opportunity to amend management zones at any time in exceptional circumstances, for example, if there is an urgent need to protect a threatened species or high cultural value species at imminent risk.



GOALS, ACTIONS AND DELIVERABLES

Goal 1: Enhance deer management through partnerships and community collaboration

The management of deer is a shared responsibility across government, Traditional Owners, industry and the community. A partnership approach is integral to the delivery of the strategy and this goal focuses on the establishment of partnerships between all key stakeholders that foster collaboration to achieve outcomes that reflect shared values and goals.

Action	Deliverable
1.1 Develop deer management zones in partnership with the community	1.1.1 Develop a deer management zone 'decision-making framework' which will outline the process for management zone determination, including information requirements and sources, the process for community consultation, accountability and monitoring and evaluation requirements.
	1.1.2 Undertake ongoing community forums where stakeholders can: <ul style="list-style-type: none"> – provide input into the determination of local deer management zone locations across the State, and – assess performance of previous zones and deer management effectiveness in protecting assets.
	1.1.3 Prepare, publish and promote the adoption of the management zone framework to inform planning and investment in deer management at the regional and local level.
	1.1.4 Undertake deer control programs and management activities based on the management zone framework.
1.2 Provide leadership and coordination through strategic partnerships	1.2.1 Coordinate an annual forum for land managers to share information regarding deer behaviour, distribution, abundance, effectiveness of control programs, impacts and management approaches to inform planning and control programs.
	1.2.2 Through the annual forum, identify ways private land owners can support deer management and encourage their involvement and collaboration at the community level.
1.3 Enhance traditional owner involvement in deer management	1.3.1 Engage with traditional owner groups to: <ul style="list-style-type: none"> – determine Aboriginal cultural and natural heritage values that need protection from the impacts of deer – ensure the protection of Aboriginal cultural and natural heritage values is considered in the determination of local deer management zones across the State.
	1.3.2 Engage Traditional Owners in strategic deer management, including assessment, monitoring, planning and management.
1.4 Explore opportunities for hunters to be involved in strategic deer management	1.4.1 Trial alternative harvest regimes to enhance deer management (e.g. targeting of female deer, pulse hunting in closed areas, balloted approaches and archery only areas).
	1.4.2 Investigate and support mutually beneficial management models between land managers and hunters such as property-based wildlife management agreements.
1.5 Enhance hunting opportunities on public land contributing to deer management	1.5.1 Explore opportunities to increase areas available for hunting and consider alternative harvest regimes in these areas as appropriate.
	1.5.2 Provide improved information on where hunting can occur legally, such as easily accessible maps and better signage.
	1.5.3 Facilitate and establish appropriate management frameworks for emerging industries, such as guiding and helicopter access to deer hunting areas.
	1.5.4 Investigate ways to improve hunting organisation involvement in annual seasonal track closure consultations.

Goal 2: Reduce the impact of deer on key environmental, agricultural, cultural and social assets

This goal supports and enables the implementation of a strategic deer management framework by identifying where improvements to existing legislation, policy and procedures are required to reduce the impacts of deer.

Action	Deliverable
2.1 Prevent the establishment of new deer species in Victoria	2.1.1 Remove Chital and Rusa deer from the list of game species under the <i>Wildlife Act 1975</i> .
	2.1.2 Review the classification of deer species not present or established in Victoria (i.e. Chital, Rusa, Wapiti, Sika) and investigate their transition to prohibited pest animals, including transitional arrangements for relevant deer farms as necessary.
	2.1.3 Under the <i>Wildlife Act 1975</i> , declare the release of any deer species into the wild in Victoria as illegal and communicate to relevant stakeholders.
2.2 Remove regulatory barriers to enable effective deer control	2.2.1 Allow public land managers to control deer where they are causing damage, without the need to obtain authorisation under the <i>Wildlife Act 1975</i> .
	2.2.2 Review whether there is still a need to licence deer taxidermy under the <i>Wildlife Act 1975</i> .
2.3 Facilitate development of a commercial deer harvest industry to reduce deer densities	2.3.1 Utilise wild deer carcasses for economic and cultural benefit. Work with commercial entities to: <ul style="list-style-type: none"> – facilitate commercial utilisation of wild deer from private and public land to reduce deer densities – improve utilisation of wild harvested carcasses from deer management programs, including pilot projects.
2.4 Improve deer management in peri-urban areas	2.4.1 In consultation with local government, develop peri-urban deer management guidelines for inclusion in the Standard Operating Procedure for the control of deer (see Action 3.1.4).
	2.4.2 Identify hot spots for deer/vehicle accidents through the establishment of a collision register.
	2.4.3 Investigate and/or trial measures to reduce deer/vehicle accidents in hot spots.
2.5 Improve management of farmed deer	2.5.1 Review the risks associated with deer farming of established deer species (i.e. Hog, Red, Fallow and Sambar Deer) and work with industry to implement measures to manage significant risks.

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

This goal promotes the improvement of our knowledge base through applied research, trials, and the establishment of a monitoring, evaluation, reporting and improvement framework. It also focuses on education and awareness-raising through plain English information kits and other resources.

Action	Deliverable
3.1 Enhance knowledge and best practice management of deer	3.1.1 Initiate and support research opportunities that progress implementation of the strategy. Priority research themes include the establishment of deer density targets to protect key assets, further information on deer distribution and abundance, management efficacy, humane control measures, monitoring and disease risk and cost. <i>Refer to Appendix C for a list of current research needs</i>
	3.1.2 Through research and trials, improve the efficiency of existing deer management and investigate new management or control methods.
	3.1.3 Quantify the economic impacts of deer on environmental, agricultural, cultural and social assets.
	3.1.4 Develop a Standard Operating Procedure and Code of Practice for the control of deer where they are causing problems.
3.2 Increase understanding of deer management options and obligations	3.2.1 Develop a deer management information pack, for all stakeholders. The kit would explain: <ul style="list-style-type: none"> – why deer management is necessary (deer impacts) – the current legislative framework for deer management (including land manager legal requirements) in plain English – options and opportunities for managing deer – the situations where shared use of public land (between hunters and others) is permitted.
3.3 Management is informed and improved by monitoring and evaluation outcomes	3.3.1 Develop and implement a <i>Monitoring, Evaluation, Reporting and Improvement Framework</i> for reviewing deer management effectiveness, value and success. This can be linked to the <i>Biodiversity 2037 Monitoring, Evaluation and Reporting Framework</i> currently under development by DELWP.



Goal 4: Reduce illegal deer hunting

Illegal hunting in Victoria is one of the major concerns of rural and regional landholders. It tarnishes the image of lawful recreational hunting and reduces the likelihood of private land owners utilising the services of hunters to reduce the impacts of deer. This goal aims to promote legal and ethical hunting practices and improve hunting compliance.

Actions	Deliverable
4.1 Improve monitoring and reporting for illegal hunting	4.1.1 Provide reporting mechanisms for people to report alleged illegal hunting activity
	4.1.2 Actively encourage the community to report illegal hunting activity
4.2 Improve hunter compliance	4.2.1 Introduce a game licence test for all new deer hunters that requires a minimum understanding of hunting laws, best practice hunting methods, and safe, humane and responsible hunting
	4.2.2 Implement an integrated approach to enforcement where key agencies work together on routine and targeted activities
4.3 Promote safe and humane hunting and deer control practices	4.3.1 Promote a 'culture of compliance' within the hunting community, including legal and ethical hunting behaviour that accounts for property access, animal welfare and biosecurity considerations
	4.3.2 Develop and make available support material to ensure hunters are knowledgeable and informed on safe, humane and responsible hunting
	4.3.3 Encourage organisations and individuals involved in deer management to adhere to best practice standards and codes of practice
	4.3.4 Promote farm assistance programs run by hunting organisations to reduce deer numbers on private property which could also minimise and deter illegal hunting activity on those properties



Implementation

A partnership approach, led by the Victorian Government, is critical to the successful implementation of the final *Deer Management Strategy*.

Actions will be delivered by a range of Government departments and agencies including:

- The Department of Economic Development, Jobs, Transport and Resources
- The Department of Environment, Land, Water and Planning
- Parks Victoria, and
- The Game Management Authority.

Partnerships with Traditional Owners, conservation and community groups, Landcare, water authorities, Catchment Management Authorities, Local Government, hunting organisations, hunters, the deer farming industry, commercial deer harvest industry and the community will be vital to successfully delivering the proposed actions.

Following the public consultation period, an Implementation Plan will be released as part of the final strategy. This will set out responsibilities, timelines, governance and reporting requirements to effectively support implementation, within available resources.

Evaluation

An evaluation of the final strategy will be undertaken within seven years of its date of release.

The evaluation will assess progress in delivering on the strategy's vision, goals and actions and will inform future direction of deer management in Victoria.



Appendix A: Victoria's approach to biosecurity

The Victorian government's approach to biosecurity is based on the return on investment principle, whereby the greatest return on investment is realised through activities that prevent the entry and establishment of a species. The benefit–cost ratio decreases as a species becomes more widespread. This is commonly represented in an invasion curve (see Figure 5).

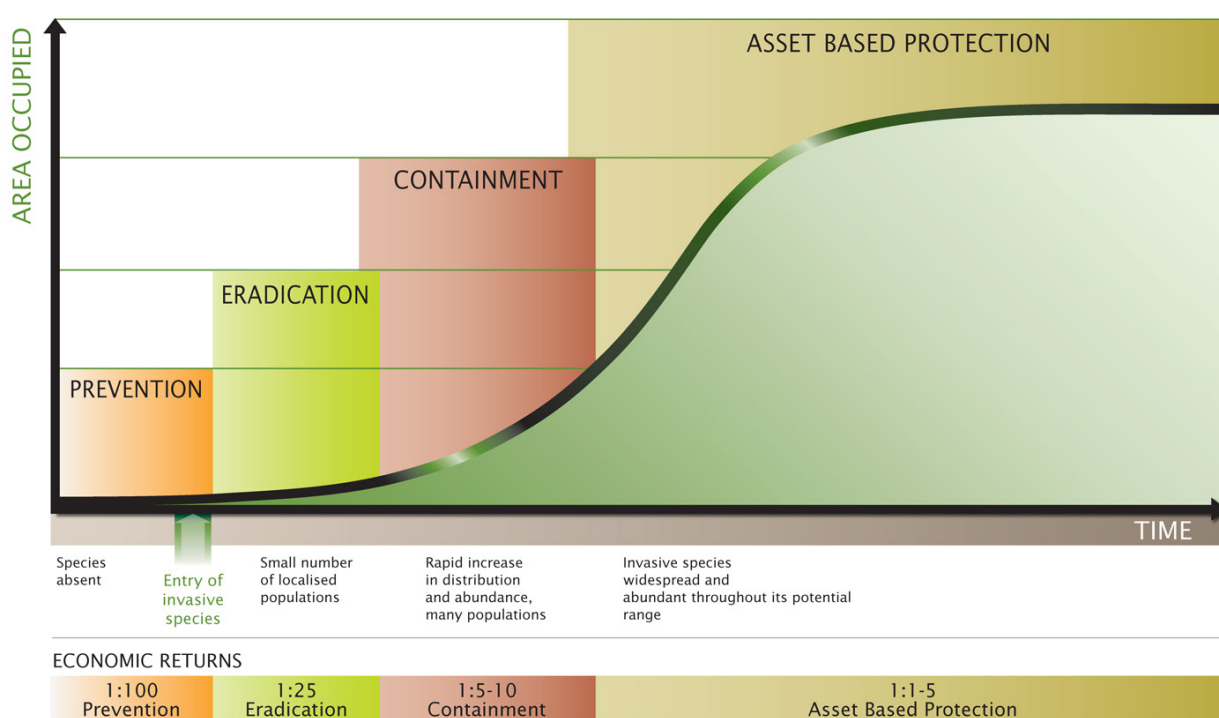


Figure 5. Generalised invasion curve showing actions appropriate to each stage

Appendix B: Distribution of deer in Victoria

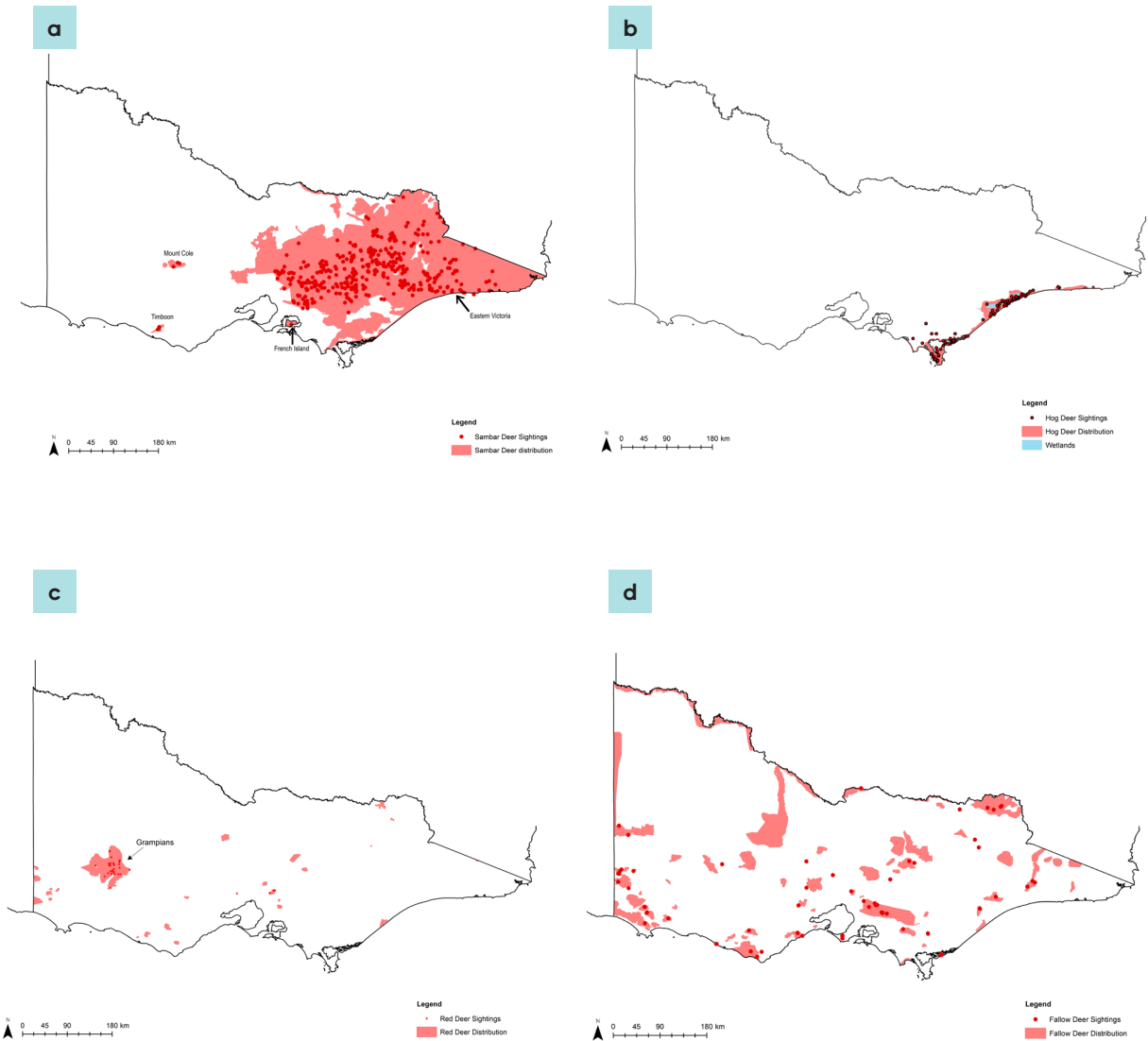


Figure 6. Estimated breeding distributions of a) Sambar deer b) Hog deer c) Red deer and d) Fallow deer.

Appendix C:

Knowledge gaps relating to deer management

The ability to manage deer effectively is impeded by gaps in current knowledge. These gaps can be broadly grouped into the following areas:

IMPACTS

- Review of impacts of deer on priority assets and the metrics for monitoring those impacts.
- Improved understanding of damage/density relationships and control thresholds required to protect assets.
- Develop a disease response strategy to determine high risk diseases, how to monitor prevalence, contact rates between deer and livestock, and use of disease as a biological control.
- Understanding of how deer carcasses affect predators (wild dogs) and disease (transfer) risks.
- Determine rate of human injury/fatality in car collisions from deer relative to macropods (perceptions v. data).

MANAGEMENT TOOLS AND SYSTEMS

- Alternative deer control or management options and their cost-effectiveness and humaneness, eg. guardian dogs, exclusion fencing, poisons, odour repellents, fertility control.
- Assess animal welfare outcomes of aerial shooting.
- The effectiveness of hunting in integrated management programs to reduce deer density.
- Improve understanding of lures and options for baiting deer.
- Build capacity and training of contractors to control deer with dogs and ground shooting.
- Cost-effectiveness of guardian dogs and exclusion fences at protecting crops.
- The commercial use of deer products to reduce deer impacts.
- Best-practice guide for monitoring and controlling deer and their impacts which includes a review of effectiveness of existing techniques for different scenarios, species, habitats, costs, how to control deer and monitor deer and their impacts.
- Improved trapping techniques.

MONITORING DEER DISTRIBUTION AND ABUNDANCE

- Assess and validate emerging techniques (e.g. thermal imaging, drones, species recognition algorithms) for monitoring distribution and abundance.
- Improve understanding of the rate and locations of where deer will spread.

COMMUNITY ENGAGEMENT AND AWARENESS

- Develop a community engagement model that considers basic education on deer impacts, education on control options, measuring behaviour change, and two-way communication with to community.
- Understand motivations of recreational hunters and the effectiveness of incentives to shoot more females/more deer.

Adapted from Forsyth D, Pople T, Page B, Moriarty A, Ramsey D, Parkes J, Wiebkin A, & Lane C (Eds) (2017). *2016 National Wild Deer Management Workshop Proceedings, Adelaide, 17–18 November 2016*. Invasive Animals Cooperative Research Centre, Canberra, Australia.

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