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Environment, Natural Resources and Regional
Development Committee

Inquiry into the control of invasive animals on Crown land

Summary Booklet

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Environment, Natural Resources and Regional Development Committee

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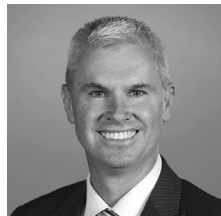
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Copies of this Summary Booklet and the full report are available on the Committee's website.

Terms of reference

Inquiry into the control of invasive animals on Crown land

Received from the Legislative Assembly on 14 April 2016:

That, under s 33 of the *Parliamentary Committees Act 2003*, an inquiry be referred to the Environment, Natural Resources and Regional Development Committee for consideration and report no later than 30 March 2017* into the benefits of Parks Victoria and other agencies such as the Game Management Authority's use of community hunting organisations and individuals in the control of invasive animals on Crown land including but not limited to the following:

1. assessment of the biodiversity outcomes, community safety and limitations of the trial conducted by Parks Victoria on control of deer populations in a national park;
2. consideration of the application of these types of programs for other invasive animal species in partnership with Crown land managers;
3. assessment of the relative costs and benefits, financial or otherwise, of other forms of pest control in national parks.

**The reporting date was extended to 22 June 2017.*

Chair's foreword

There is no doubt that invasive animals are a problem in Victoria. They impact on agriculture by preying on livestock, consuming pasture and damaging fences. They harm the environment by killing native species, damaging native vegetation and competing with native animals for food. They threaten people's safety and amenity through car accidents and the fear of being attacked.

During this inquiry, the Committee heard from people and organisations from across Victoria. Many of them had directly experienced the negative effects of invasive animals. Many believed the problem is getting worse.

It is clear that more needs to be done to manage invasive animals.

However, it is less clear exactly what should be done. This inquiry found that there is a lack of robust data about the extent of the invasive animal problem and the effectiveness of different control methods. Some work is currently underway to improve our understanding but the results are not yet available. Further work in this area will be important for future policy development.

This inquiry focussed on the role of shooting in invasive animal control, particularly the role of recreational hunters. There was general agreement that recreational hunting cannot manage Victoria's invasive animal problem by itself. However, it may be part of the solution in some circumstances, if the hunting effort can be focussed at particular times and places and integrated into a broader control program involving multiple methods of animal control. This report considers in more detail when and how recreational hunters can be most helpful in terms of animal control.

The inquiry also identified potential improvements in the way that invasive animals are managed by government bodies. Effective animal control programs require a co-ordinated, long-term, strategic approach. But the responsibility for invasive animal control is currently spread between multiple bodies. There is no single point of accountability. It can be difficult for groups wanting to work together with government bodies to co-ordinate action.

These factors make it harder to manage invasive animal control in Victoria. The Committee determined that it is necessary for one body to be given overall responsibility for invasive animal control. This body should develop and implement an overall plan. This body needs to be a single point of contact for the community, so different stakeholders can more easily collaborate. This body should be accountable for invasive animal control across the state through a robust monitoring, evaluation and reporting framework.

Invasive animals are a significant problem affecting many Victorians. This report identifies some ways to improve our response to the problem and I commend it to the Parliament.

On behalf of the Committee, I would like to thank the many individuals and organisations who wrote submissions, attended public hearings or hosted site visits for this inquiry. The Committee very much appreciates the significant effort made to inform the Committee about the current situation and potential ways forward.

I would also like to express gratitude to present and former members of the Committee for their hard work and collegiate approach to this inquiry. I would particularly like to acknowledge the work of Ms Bronwyn Halfpenny MP, who chaired the Committee for the majority of this inquiry. I also thank the Committee's secretariat for their hard work and invaluable assistance to the Committee throughout the inquiry.

A handwritten signature in blue ink, appearing to read 'JBull', is positioned above the name of the chair.

Josh Bull MP
Chair

Executive summary



Committee members inspecting damage caused by deer on an agricultural property

Invasive animals are expanding in number and distribution across Victoria, damaging the environment, hurting agricultural businesses and reducing liveability. In many cases, invasive animals spread from Crown land onto private land, where they can damage property, kill livestock and consume pasture and crops. Evidence suggests that these problems are becoming worse in many parts of Victoria.

Victoria's complex legislative framework and complicated division of responsibilities have contributed to confusion and inefficiencies in controlling invasive species.

In response to the growing problems with invasive animals, Parks Victoria and other organisations have tried using recreational hunters to help. Several programs have been established in which government or other bodies work with community hunting organisations to control invasive animals. In these programs, volunteer recreational hunters are co-ordinated to shoot invasive animals at specific times and specific locations on Crown land. This approach is distinct from unsupervised recreational hunting, in which individuals or groups operate in areas and at times of their own choosing.

The terms of reference for this inquiry asked the Committee to investigate these co-ordinated programs and assess their effects on biodiversity, community safety and the deer population. The Committee was also asked to assess whether these programs could be used to control other invasive species. The Committee was

required to compare the costs and benefits of this approach to other forms of pest control (which include trapping, baiting, biological control, habitat destruction and other forms of shooting, such as paid professional shooters and unsupervised recreational hunting).

The continuing expansion of invasive species highlights that greater animal control is needed in Victoria. However, invasive species control is a complex area. Determining the most appropriate management strategy is not a straight-forward task and can vary according to the species, environment and a variety of other factors. There is currently a lack of robust data about the effectiveness and relative costs and benefits of different control methods in the Victorian context. This compounds the difficulties of determining the most appropriate strategy.

However, there was broad agreement among submitters and witnesses to this inquiry that recreational hunting cannot remove enough animals by itself to manage the invasive animal problems in Victoria. Nonetheless, the evidence received by the Committee suggests that recreational hunting can be an effective part of programs involving multiple control methods for certain species in some circumstances, if the hunting effort can be focussed at particular times and places.

To effectively control invasive animals, there is also a need to change the way that government and its agencies manage the problem. Above all, there is a need for a strategic approach and a single point of responsibility and accountability.

These issues are discussed in detail within the report. Following a brief introduction (Chapter 1), the report is divided into three parts.



Image credits (clockwise from top left): feral deer (Peter Jesser), feral pig (Daryl Panther), feral fox (John Twine), feral fox (Gary Tate). All images supplied by Invasive Animals CRC.

Part A: Background

Part A of the report comprises three chapters that provide background information on invasive species and the current approach to their control, including an outline of the management, regulation and oversight of recreational hunting in Victoria.

Chapter 2: Invasive animals

Chapter 2 examines the number and distribution of key invasive species in Victoria. The chapter outlines the species defined as ‘invasive’ in Victoria, which include deer, foxes, cats, horses, rabbits, goats, pigs and dogs. The Committee finds that the size of the invasive animal population in Victoria is generally unknown, although work is underway to get a better understanding of the distribution of animals. While acknowledging that accurate numbers can be difficult to determine, the Committee considers that more research and information in this area may be useful to inform future policy decisions.

Chapter 2 also highlights the wide-spread issues invasive species are causing across the state. These include damage to biodiversity, the environment and native vegetation. Invasive animals also have negative impacts on agriculture, through predation of livestock, destruction of pasture, consumption of crops, damage to farming infrastructure (particularly fencing) and the potential spread of disease. Invasive animals are causing increasing concern for the broader community due to the risk of vehicle accidents, the destruction of urban environments, threats to people’s safety and potential damage to the tourism industry.

Chapter 3: Current approaches to invasive animal control in Victoria

Chapter 3 outlines Victoria's complex regulatory framework in relation to invasive animals. This includes multiple pieces of legislation, a variety of policies and overlapping responsibilities. Responsibility for invasive animals is also divided between various government bodies, non-government bodies and private landowners. As a result, there are challenges in relation to establishing an overall strategic approach, co-ordinating action between different stakeholders and establishing appropriate accountability mechanisms.

Chapter 4: Recreational hunting in Victoria

Chapter 4 provides an overview of recreational hunting in Victoria. The various rules and regulations around hunting and the impact of recreational hunters on invasive species are detailed. This provides context for further discussions throughout the report about using recreational hunters as part of an invasive species control strategy.

It is noted that recreational hunting kills a large number of invasive animals each year (including over 70,000 deer in 2015) and contributes to regional economies. The Committee also received evidence from individuals concerned about irresponsible and illegal hunting activity. However, the Committee notes that the extent of this problem is unknown.



Image credits (clockwise from top left): feral dogs (Richard Ali), feral rabbit (Kevin Solomon), feral dog (Lee Allen), feral goats (Nic Perkins). All images supplied by Invasive Animals CRC.

Part B: Approaches to invasive animal control

Part B of the report considers and compares the different control methods that can be used to manage invasive species.

Chapter 5: Assessing animal control methods

Chapter 5 considers how we might determine which control methods are the most appropriate. The chapter notes the significant data limitations that currently exist in relation to the effectiveness and costs of different methods. The chapter highlights the importance of measuring the outcomes and consequences of any control method, noting that the appropriateness of a method will differ depending on factors including location, species, the broader control program and the outcomes the method is aiming to achieve.

Merely counting the number of animals removed from an area is not an effective means of measuring the success of a program. Many invasive species are able to recover quickly from large numbers of animals being culled. Control efforts may have no impact on an animal population beyond the immediate term unless a critical proportion of the population is removed. Simply counting the number of animals killed does not indicate whether or not that critical proportion has been achieved. In addition, in some cases, reducing the number of one species may increase the number of another, which may offset the benefits that come from killing the target species. These considerations need to be taken into account when assessing the effectiveness of control programs.

Monitoring changes in the impact of invasive species (such as the condition of the environment, native species numbers or livestock losses) or changes in the relative abundance of an invasive species are considered the most appropriate methods of assessing control programs.

Chapter 6: Professional and recreational shooting

Chapter 6 examines professional and recreational shooting as methods of invasive species control. Paid professional shooters are highly trained, competent and experienced hunters. Recreational hunters do not necessarily have the same level of proficiency, although some recreational shooters are also well trained and highly experienced. Professional shooters have access to a range of equipment and are able to apply a range of control methods, whereas restrictions apply to the equipment that recreational hunters can access. Differences in effectiveness and concerns about public safety were identified as reasons to utilise professionals over recreational shooters.

New South Wales, South Australia and Victoria have trialled the use of co-ordinated recreational hunters as part of pest control programs. Co-ordinated programs often involve accreditation, a high degree of supervision and a strong safety focus. Chapter 6 examines these programs, including the evaluation of these programs and any known outcomes achieved.

The chapter looks at the trials of co-ordinated recreational hunting to control deer in Wilsons Promontory National Park, Alpine National Park and the Yarra Ranges. There is a lack of robust evaluation for the Wilsons Promontory and Yarra Ranges programs, though there is some evidence to suggest that the Yarra Ranges program may be achieving positive outcomes. The Alpine National Park trial design is comprehensive and should strengthen our ability to determine which deer control activities are effective. However, this program is currently only in the early stages and results are not yet available. Other co-ordinated volunteer efforts to control pest animals in Werribee Park, St Helens Flora Reserve and Griffiths Island suggest that co-ordinated recreational hunting can be successfully applied to the control of species other than deer.

Finally, costs associated with each form of shooting are examined in the chapter. Costs to government associated with unsupervised recreational hunting are minimal. While there are no salary costs for volunteer hunters in co-ordinated recreational hunting programs, there are costs associated with co-ordinating, planning and executing these programs. There can be substantial costs associated with paid professional shooters, though the outcomes achieved in return may be considerably higher.

Chapter 7: Other methods of control

Chapter 7 details methods other than shooting that can be used to control invasive animals. The chapter looks at the advantages and disadvantages of poisons, biological control (such as pathogens or predators), live capture, warren destruction, harbour destruction, fencing, deterrents and fertility control.

Chapter 8: Comparison of recreational hunting with other methods of invasive animal control

Chapter 8 evaluates the relative effectiveness of the different control methods for each invasive species examined in this inquiry.

In relation to deer, fencing and shooting are the main methods of control. Further research on alternative control methods in this area may be beneficial. Rabbits require a combination of control methods (such as viruses, poison and warren destruction) to achieve effective control. Goats have been successfully controlled via a mixture of professional and recreational shooting (aerial and ground). Poisoning is the most effective control method to achieve broad-scale control of wild dogs, foxes and pigs. Programs combining poisoning with other methods, including trapping and shooting, may be more effective in some cases.

Shooting, baiting and trapping may be effective mechanisms to control wild cats. However, current Victorian legislation prevents these being used, as cats found in the wild must be captured and delivered to the local council. Changes are required to allow effective cat control to occur.

Live capture (with the animals then transported for sale or euthanased), ground shooting and aerial shooting were cited as possible management techniques for wild horses. Recreational hunters expressed a strong disinterest in shooting wild horses. Using volunteer hunters for horse control is therefore not a viable option.

The chapter concludes that recreational hunting does not have the capacity by itself to control invasive animals in Victoria. However, it may play a useful role in some circumstances as one part of a multi-method approach, especially for deer, rabbits, pigs and goats. To be effective, though, it is essential for the shooting effort to be focussed at particular places and times.



Image credits (clockwise from top left): feral horses (Meghan Lindsay), feral cat (John Blakeman), feral cat (Granite Borders Landcare). All images supplied by Invasive Animals CRC.

Part C: Improving invasive animal control in Victoria

Part C of the report looks at the potential changes to invasive animal control in Victoria based on the findings in Parts A and B.

Chapter 9: Suggested changes to recreational hunting

Chapter 9 examines changes that could be made to enhance recreational hunters' contribution to invasive species control.

The chapter examines opening more areas of public land for hunting and finds that a land use investigation should be undertaken to assess potential changes (while also considering potential risks, including public safety). Similarly, the Committee believes that consideration should be given to allowing recreational hunters to shoot pest species in more areas. Improving track access on public land and facilitating hunting tourism may also be ways to increase the contribution of recreational hunting to invasive species control.

The Committee considered the current classification of deer as game (with the exemption that allows the destruction of deer on private land) rather than pests. The Committee finds that this status does not restrict the ability of landowners and land managers from implementing control strategies.

This chapter discusses what recreational hunters believe are the barriers that reduce the effectiveness of recreational hunting's contributions to the control of invasive species. These include restrictions on firearms, noise suppressors and spotlights.

Motivating hunters to target female animals and an ‘aim to cull’ approach are also discussed as means of increasing hunters’ contribution to the fight against invasive species. Research into the location, numbers, behaviour and movements of invasive species may also assist hunters to be more effective.

Bounties were raised by a number of submitters and witnesses to this inquiry as a way to provide incentives for recreational hunters to kill more animals. However, the negative evaluations of previous bounty schemes are noted.

The Committee considers that reducing barriers and providing incentives in specific areas at certain times may be ways to focus recreational hunting efforts to where they can most effectively contribute to invasive species control. Any consideration of changes, however, must carefully consider the costs, benefits and risks to ensure that funds are spent most effectively and that community safety is not compromised. If hunting is expanded through these means, the Game Management Authority would require additional resources to manage and monitor hunting activities.

Chapter 10: Invasive animal control – going forward

Chapter 10 considers the future of invasive species control in Victoria. The chapter details the strategic approach that is required to ensure effective programs can be implemented, with clear responsibility and accountability for invasive animal control, collaboration between stakeholders, adaptability, long-term planning and recurrent funding.

The Committee finds that giving a single body overall responsibility for invasive and pest animal management in Victoria is important for achieving this strategic approach. This authority could also provide a single point of contact for people and organisations undertaking control activities and could facilitate strong collaboration between these individuals and bodies. This would contribute to the application of the tenure-blind approach that is required for effective invasive species control.

The chapter highlights the importance of monitoring, evaluating and reporting on any control program.

The chapter concludes that effective, long-term invasive species control must incorporate multiple methods in an appropriate sequence. Shooting, when focussed at particular times and places, can be one part of this broader approach.

The Committee notes that the current Alpine National Park deer control trial has the potential to identify the circumstances where recreational and professional shooting are best suited, as well as identifying the costs and benefits of co-ordinated recreational hunting more generally. Results from this trial should be analysed and used to form future policy and direction in this area.



Public hearing in Mansfield



Public hearing in Dunkeld

Findings and recommendations

Page references are for the full report

2 Invasive animals

FINDING 1: No accurate population numbers exist for invasive species in Victoria. Data relating to invasive species populations and densities are important to inform decisions on invasive animal control. However, determining absolute population numbers can be difficult and costly. 16

RECOMMENDATION 1: That the Government allocate resources to the appropriate authority to undertake work to quantify and measure the numbers and impact of invasive species populations. 16

FINDING 2: Important projects are currently underway to enable a better understanding of the distribution of invasive animal populations and to make that information accessible. 18

FINDING 3: The lack of comprehensive data about deer in Victoria makes it difficult to accurately determine the reasons for changes in the deer population. 23

FINDING 4: The population of deer in Victoria has increased alarmingly in recent decades, causing a number of problems for native ecosystems and agricultural enterprises. While there is some debate about whether or not the population will continue to increase, deer will continue to be a problem, regardless of marginal increases or decreases in the population. 23

FINDING 5: Numbers of feral and wild animals, including cats, horses, rabbits, foxes, goats, pigs and dogs have increased over time and have become a major issue in Victoria. They are causing substantial economic, environmental, agricultural and social issues through overpopulation, predation and competition for resources. 28

FINDING 6: European wasps pose serious threats to biodiversity, agriculture and community safety in Victoria. Indian myna birds may also impact on native bird populations through competition for resources. The Committee recognises the importance of controlling these animals, though it acknowledges they are outside the terms of reference for this inquiry. 30

FINDING 7: Invasive animals pose a serious problem for Victoria’s native flora and fauna and therefore require urgent action. 38

FINDING 8: Public land managers are failing to control invasive species on public land. As a result, the animals are expanding onto private land, causing problems for private individuals. It can be time-consuming and costly for farmers to protect their land from invasive animals, particularly when they are not controlled on neighbouring public land. 45

FINDING 9: Invasive animals in Victoria cause road accidents, threaten the personal safety of people in bush areas, cause damage to urban environments and risk damage to Victoria’s tourism industry. 48

3 Current approaches to invasive animal control in Victoria

FINDING 10: While the responsibility for invasive animal control on private land is clear, the responsibility for public land is divided between multiple parties, with sometimes overlapping roles. There is no body with an overall responsibility for invasive animal control. 62

FINDING 11: The convoluted nature of the legislative and policy framework in Victoria means that different rules apply to what control methods can be used depending on who you are, the species causing problems and the classification of the land. Responsibility for invasive animals is spread across multiple parties and differs depending on the species and land type. This makes it very difficult to co-ordinate an overall strategic approach to invasive animals. 69

FINDING 12: The complicated division and over-lapping of powers, responsibilities and roles between various government bodies, non-government bodies and private landowners is unclear and makes accountability and transparency difficult. 69

FINDING 13: Invasive animals do not recognise or obey land boundaries and any management approach must acknowledge this. Therefore, programs must run across multiple land tenures. Co-operation and contribution from different landowners is essential for effective invasive species management. 69

FINDING 14: The Victorian Government’s commitment in its *Protecting Victoria’s Environment – Biodiversity 2037* plan to ‘progressively review the regulatory framework to ensure that it supports achievement of the goals and targets of this Plan, is adaptable to changing circumstances and upholds accountability’ is a big step in the right direction. 69

FINDING 15: It is important for land managers to be able to undertake the most effective approach to invasive animal control, which will often involve using multiple methods. While recreational hunters may have a role to play, professional pest controllers will remain an essential component, given their ability to employ a variety of control methods. 69

4 Recreational hunting in Victoria

FINDING 16: The number of deer harvested by recreational hunters has increased over time with over 70,000 killed in 2015. The number of pest species harvested by recreational hunters is unknown. 89

FINDING 17: Recreational hunting is an activity undertaken by many Victorians. While a 2013 study found that hunting contributes \$439.0 million per year to the Victorian economy, concerns have been expressed about the methodology used to make that estimate and about the extent to which hunters’ expenditure would take place regardless of whether or not they were allowed to hunt. 91

FINDING 18: There are legitimate community concerns with irresponsible and illegal hunting activity, including damage caused to private property, stress for landowners from having to confront illegal hunters, concerns about safety and disruptions to farming activities. However, the incidence of this behaviour is unknown. 97

RECOMMENDATION 2: That Victoria Police and the Game Management Authority work collaboratively to better monitor and educate the community on reporting mechanisms for illegal hunting activity.. . . . 97

5 Assessing animal control methods

FINDING 19: Programs aimed at controlling invasive animals have not previously incorporated sufficient monitoring or evaluation mechanisms. Therefore, there is currently a lack of data about the relative costs and benefits of different control techniques in Victoria. The Committee cannot undertake a quantified cost-benefit analysis of different control techniques without accurate data. 104

RECOMMENDATION 3: That the Government evaluate the effectiveness of existing control programs to manage invasive species. 104

FINDING 20: Land managers need to have the flexibility to employ different control methods (or combinations of methods) depending on the circumstances. 106

FINDING 21: Counting the number of invasive animals killed is not a reliable way to assess the effectiveness of an animal control program. It fails to account for the differing numbers of animals that may be causing a problem in different situations, the fact that many species can recover from large culls quickly and possible secondary impacts from species that benefit from the removal of the target species. More effective ways to assess control programs include monitoring changes in the impact of invasive animals (such as the condition of the environment, native species numbers or livestock losses) or changes in the relative abundance of an invasive species.. . . . 111

FINDING 22: In addition to effectiveness, it is important to identify and agree on the purpose of performing the control work when determining the method of control to apply in a particular circumstance. An assessment of control methods may consider the impact on agriculture, the impact on the environment, the humaneness and the recreational and lifestyle opportunities of hunting.. . . . 116

6 Professional and recreational shooting

FINDING 23: In spite of safety concerns with hunting, there was overwhelming support for the use of shooting (including co-ordinated volunteer hunting programs) in invasive species control. 127

FINDING 24: The Committee supports improvements in monitoring the effectiveness of the Wilsons Promontory National Park trial and believes the focus of assessment should be on measuring the impacts on the assets the trial aims to protect, as indicated in the Wilsons Promontory Conservation Action Plan.. . . . 132

FINDING 25: The Alpine National Park deer management trial design is comprehensive and addresses a number of key issues. The comparative evaluation of co-ordinated volunteer hunting, unsupervised recreational hunting and paid professional shooters should strengthen our ability to determine which deer control activities are most effective. The results should be important in future government policy and will help the public to understand government decisions about invasive animal control.135

RECOMMENDATION 4: That the Government make publicly available the results of the Alpine National Park deer management trial once completed and use these findings to inform future invasive species management program designs. 135

FINDING 26: It is essential that private landowners and public land managers work collaboratively to ensure any control program on one land type complements work occurring on another. 140

RECOMMENDATION 5: That Parks Victoria engage, consult and work together with private landowners whose property adjoins public land where invasive species control programs are occurring to facilitate and ensure complementary control activities occur across land tenures. 140

FINDING 27: Co-ordinated recreational hunting programs have been successfully used for invasive species other than deer and complement the use of other control techniques to achieve landscape-level control.143

FINDING 28: Co-ordinated recreational hunting programs are most appropriate in small, contained locations that experience high visitation, where the goal is asset protection. Their application to a larger scale across the state is likely to be less effective.146

RECOMMENDATION 6: That the Government ensure all co-ordinated recreational hunting programs are appropriately supervised, involve wide consultation, are well advertised, are rigorously evaluated and are transparent to ensure the concerns and needs of communities are addressed. 146

FINDING 29: Evidence provided about some co-ordinated recreational hunting programs suggests that they may be achieving benefits in terms of controlling invasive animals. However, in most cases, the monitoring activities are inadequate to properly evaluate the programs. Different measures have been adopted for different programs, preventing a proper assessment of the relative effectiveness of different techniques.164

FINDING 30: The current lack of data makes it impossible to accurately assess the effectiveness of co-ordinated recreational hunting or compare it to other methods of animal control.164

FINDING 31: The Government intends to implement a more robust monitoring framework for the Alpine National Park deer management trial, which involves using multiple methods. The results of this trial should improve our knowledge of the effectiveness of co-ordinated recreational hunting and strengthen our ability to determine which deer control activities are most effective.164

RECOMMENDATION 7: That the Government develop a monitoring framework that is designed to provide a better understanding of the relative effectiveness of different control methods (and combinations of methods) and can be used to assess whether or not funds for invasive animal control are providing the best value for money. 164

FINDING 32: Program designs need to address community concerns relating to recreational hunting, such as increases in invasive animals on surrounding private land, reductions in amenity for other park users, increases in illegal hunting and risks to community safety. 165

FINDING 33: Many Victorians have a cautious attitude towards the use of firearms and concerns about the safety of recreational hunting, especially unsupervised recreational hunting. For any program involving shooting to control invasive animals, it is important for there to be effective communication and consultation to ensure community confidence and understanding. 165

FINDING 34: Paid professional pest controllers play an important role in invasive animal control as they are able to apply a flexible approach, providing not only shooting but also a range of other animal control methods. Recreational hunting should not be seen as a substitute for the use of paid professional shooters. 165

FINDING 35: Paid professional pest controllers and recreational hunters can work well together to achieve effective invasive animal control. These two methods can complement each other as a part of a multi-method animal control program. 165

RECOMMENDATION 8: That programs using volunteer hunters be used to complement rather than displace the use of paid professional pest controllers. Any funding to support co-ordinated recreational hunting programs should be in addition to funding for engaging professional pest controllers. 165

8 Comparison of recreational hunting with other methods of invasive animal control

FINDING 36: The most effective method of rabbit control has been combining methods such as viruses, poison and warren destruction. Recreational hunting has not significantly contributed to rabbit control. 185

FINDING 37: A combination of paid professional shooters and recreational hunting organisations has proven successful in reducing goat numbers in some areas of Victoria and South Australia. 186

FINDING 38: Recreational hunting by itself is not an effective method of controlling pigs in most circumstances. 190

FINDING 39: Poisoning has been found to be the most effective and economical method to control foxes. Recreational hunting has been shown to be effective when concentrated in smaller areas. 203

FINDING 40: Current Victorian legislation prevents any effective control of feral cats. 206

RECOMMENDATION 9: That the Government declare feral or wild cats to be ‘established pest animals’ under the *Catchment and Land Protection Act 1994*, mirroring the way wild dogs are classified. 206

FINDING 41: There has been little work done to control feral horses and therefore best control methods cannot be determined. 210

FINDING 42: Shooting feral and wild horses using recreational hunters is not a viable option of control as a horse-shooting culture does not exist in Victoria and hunters have expressed a strong disinterest in the act. 210

FINDING 43: Deer-proof fencing can be effective at keeping deer out of an area but is expensive. The government is not required to contribute to the cost of fences between private and Crown land, leaving private land owners with the full cost of fences to keep animals on Crown land from entering private property. 213

RECOMMENDATION 10: That the Government provide some financial support to private landowners to assist with the additional cost of deer-proof fencing (over and above the cost of regular fencing) where there are ongoing, severe problems with invasive animals entering the private property from Crown land or where establishing a deer-proof fence would provide significant environmental benefits. 213

FINDING 44: Fencing and shooting are the only methods available to control deer and these are not enough. Deer-proof fencing is expensive and only suitable to protect small areas. 221

FINDING 45: Deer as invasive animals seem to be limited to Australia and New Zealand. Therefore, we cannot rely on international research or studies on how to control deer. 221

RECOMMENDATION 11: That the State Government raise, during a Council of Australian Governments forum (or other inter-governmental meeting), the need for urgent funding to research methods and techniques to control deer that could be practically implemented in Victoria. 221

FINDING 46: Recreational hunting has not had the capacity by itself to control invasive animals in Victoria. However, it has played a useful role when part of co-ordinated programs using a number of animal control methods and when focussed at particular places and times. 226

9 Suggested changes to recreational hunting

FINDING 47: There are more areas in Victoria that would benefit from recreational hunting to control invasive animals. However, there is a lack of data about where hunting would be most beneficial. Comprehensive trials (such as the deer control trial in the Alpine National Park) have not been finalised but should provide more information in the future. 234

RECOMMENDATION 12: That the Victorian Environmental Assessment Council undertake a land use investigation to assess what areas of public land could be available for recreational hunting. This investigation should include risk assessments and community consultation. 234

FINDING 48: Safety for public land users is the primary concern raised in the consideration of opening more areas of public land for recreational hunting.	236
FINDING 49: The game licencing system provides an important regulatory safeguard on game hunters. However, the Game Management Authority has limited capacity to provide in-field oversight.	236
RECOMMENDATION 13: That the Government provide the Game Management Authority with additional resources to manage an increase in recreational hunting, specifically additional authorised Game Officers to improve the in-field monitoring of hunters.	236
FINDING 50: Communication, education and training are all essential elements to a safe and effective recreational hunting industry.	236
RECOMMENDATION 14: That the Government develop mechanisms to improve information sharing and communication between hunters and other land users to facilitate safe co-existence on public land.	236
FINDING 51: In some cases, current legislation prevents hunters shooting pest animals on certain categories of land, resulting in lost opportunities for game hunters to contribute to reducing the pest species population.	238
RECOMMENDATION 15: That the Government review its current pest management plans and explore legislative barriers that prevent shooting of pest species whose control might be assisted by recreational hunting.	238
FINDING 52: The current game classification of deer, and the exemption that allows the destruction of deer on private land, does not restrict the ability of landowners and land managers from implementing deer management strategies.	242
FINDING 53: The current access to tracks on public land and their condition are limiting the number of invasive animals recreational hunters are able to cull and their ability to remove the carcasses.	244
FINDING 54: Victoria has significant hunting tourism potential due to its game and pest species population and its extensive areas of public land. Facilitating hunting tourism, specifically in a way that targets hunters to certain areas, may provide economic benefits to the state and contribute to invasive animal control.	248
FINDING 55: Using category C and D firearms can assist in achieving greater efficiency in controlling invasive animals. While professional pest controllers are eligible to apply for category C and D firearms and primary producers may apply for category C firearms for pest control, recreational hunters are not eligible to access these categories.	252
RECOMMENDATION 16: That the Victorian Government consult with Victoria Police in relation to recreational hunters having access to category C and D firearms to facilitate greater invasive animal and pest control.	252

FINDING 56: The use of noise suppressors allows for an increase in shooting efficiency due to reduced recoil, more accurate shot placement and a reduction in animal disturbance. These factors increase the number of animals a shooter is able to cull in a shorter space of time. Noise suppressors reduce noise pollution, prevent hearing loss and increase hunters’ capacity to communicate with others in the area. 256

RECOMMENDATION 17: That Victoria Police consider including recreational hunters participating in co-ordinated invasive animal control programs within the categories of people eligible to obtain noise suppressors. 256

FINDING 57: Spotlighting is a more effective hunting method than stalking. The use of spotlights in co-ordinated deer control trials has proven to increase the cull rate.. . . . 258

FINDING 58: Advancements in technology have improved the management and safety of hound hunting. In particular, technology such as GPS collars can reduce the likelihood of hunting dogs becoming lost in the bush.. . . . 261

RECOMMENDATION 18: That the Government promote the use of GPS collars by recreational hunters when hound hunting. 261

FINDING 59: The lack of infrastructure and assistance provided to recreational hunters to facilitate the personal use of carcasses is a deterrent for some hunters to hunt more. It may result in meat wastage or in fewer animals being harvested due to a reluctance to ‘kill to waste’.. . . . 263

RECOMMENDATION 19: That the Government explore amendments to the *Meat Industry Act 1993* that would allow wild deer to be processed at game and general meat-processing facilities for personal consumption. 263

FINDING 60: Commercial harvesting of wild game and pest animals could provide recreational hunters with an incentive to shoot more animals and remove more carcasses. The disease and pathogen risks associated with wild animals would need to be examined and strictly managed if commercial sale of meat from wild species were permitted in Victoria. 268

RECOMMENDATION 20: That the Government examine ways commercial harvesting of game and pest animals could be facilitated during co-ordinated recreational hunting programs in limited areas during short time periods.. . . . 268

FINDING 61: For recreational hunting to be most effective at controlling invasive animals, it needs to be concentrated at certain times and places and co-ordinated with other forms of animal control. Incentives may be useful in focussing the efforts of recreational hunters at these times and places. 269

RECOMMENDATION 21: That, as part of invasive animal control programs, the Government identify times and places where recreational hunting can make a helpful contribution. The Government should then explore ways to reduce the barriers to hunting at those times and places.. . . . 269

FINDING 62: Targeting the female population of a species has the biggest influence on invasive animal control. However, recreational hunters, as a whole, disproportionately target males to get trophies. 271

FINDING 63: Some recreational hunters are reluctant to kill as many animals as possible due to a culture of not wasting animals.	271
RECOMMENDATION 22: That the Game Management Authority, in association with Victorian hunting organisations, educate and encourage recreational hunters to contribute to controlling invasive species through shooting larger numbers of animals and targeting females.	272
FINDING 64: Many hunters support bounties as a way to increase hunting effort and compensate recreational hunters for their work. However, an evaluation of an earlier fox bounty scheme in Victoria suggested that bounties may not be effective in reducing the impact of invasive animals.	275
RECOMMENDATION 23: That the Government implement an ongoing evaluation program of the current wild dog and fox bounty systems which evaluates whether the bounties are providing value for money or whether the money would be more effectively spent on alternative invasive animal control methods.	275
RECOMMENDATION 24: That the Government publicly release the results of any evaluations of the bounty system.	275
FINDING 65: Understanding the habits, motivations and movements of a species can assist in its effective management. However, the Committee was told that there is a lack of data available in relation to the behaviour, populations, movement and distribution of invasive species, particularly deer, in Victoria.	277
RECOMMENDATION 25: That the Government conduct research into the location, numbers, behaviour and movements of invasive species in Victoria. Key insights from this research that could assist hunters should be communicated to the hunting community.	277

10 Invasive animal control – going forward

FINDING 66: To ensure ecosystem health, all species that are causing issues must be addressed across both public and private land.	281
RECOMMENDATION 26: That the Government include both invasive animals and native pests within one strategy that applies across all land types.	281
FINDING 67: Acting now to contain deer populations before they spread further will provide better financial returns than funding work to manage populations after they have been allowed to grow and expand.	282
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.	282
FINDING 68: Recurrent funding is needed for invasive animal control, as short-term programs do little to limit invasive species damage overall.	285

RECOMMENDATION 28: That, as part of *Protecting Victoria’s Environment – Biodiversity 2037*, the Government guarantee long-term recurrent funding for invasive animal control. 285

FINDING 69: Government policy acknowledges the importance of partnerships in successful animal control programs. However, the evidence received suggests that this policy has not been implemented in practice, with individual landholders, organisations and local government experiencing difficulties co-ordinating their animal control programs with state government programs or getting required actions/permissions from government bodies. 289

RECOMMENDATION 29: That the Government investigate barriers preventing proper consultation and collaboration between individuals, organisations and other bodies in relation to animal control and implement measures to ensure that this occurs in the future. 290

FINDING 70: Paid professional pest controllers have extensive experience and knowledge of invasive species, areas of land and methods of control. Consultation and collaboration with professional pest controllers could provide benefits to any invasive animal control program. 290

RECOMMENDATION 30: That the Government engage paid professional pest controllers in an advisory role when designing and implementing invasive species control strategies and programs.. . . . 290

FINDING 71: Invasive animals do not recognise or obey any land boundaries, including state borders. Effective collaboration and co-operation, particularly in relation to research and knowledge about invasive animals, at both federal and state level, is important for informing decisions.. . . . 291

RECOMMENDATION 31: That the Government raise the issue of research into controlling deer with the Council of Australian Governments and request the Federal Government initiate comprehensive research into control methods. 291

FINDING 72: Adaptability is a key element of an effective animal control program. Bureaucratic processes need to be flexible and rapid enough to enable land managers to change approach when required and to take advantage of opportunities when they arise.. . . . 293

FINDING 73: There was some debate during this inquiry about the importance of research and whether funds are best spent on research or on executing control programs. Ongoing research is essential to better understand invasive animal management, including the relative effectiveness of different control methods, potential new methods, appropriate targets for animal control and the impacts of invasive animals on the environment and agriculture. 295

FINDING 74: An understanding about the need to control invasive animals and the rationale for government programs is important for community support.. . . . 296

RECOMMENDATION 32: That the Government develop initiatives to educate the public on the invasive species problem in Victoria.. . . . 296

FINDING 75: There are too many government agencies, departments and bodies that have ad hoc funding and multiple overlapping responsibilities for the control of invasive animals and pests in Victoria. 300

FINDING 76: Having multiple government departments, agencies, community groups and private landholders involved with animal management can make it difficult for parties to collaborate and for programs to be sufficiently adaptable to take advantage of opportunities.301

RECOMMENDATION 33: That the Government designate one government body to be a single point of contact for private landowners, local government and community groups, that has overall responsibility and accountability for invasive and pest animal control in Victoria. This body’s responsibilities should include:

- developing an overarching plan for invasive and pest animals, including identifying priority actions
- ensuring that programs take place in accordance with the plan
- monitoring landowners’ compliance with their legal responsibilities in relation to pest animals
- promoting best practice among people undertaking animal control programs
- facilitating collaborative efforts involving different government bodies, community groups and private landholders
- publicly reporting on the effectiveness of animal control programs each year. . 301

FINDING 77: Monitoring, evaluation and reporting are critical to ensure that appropriate actions are taking place to control invasive and pest animals and that funds are being spent in the most effective manner. 304

