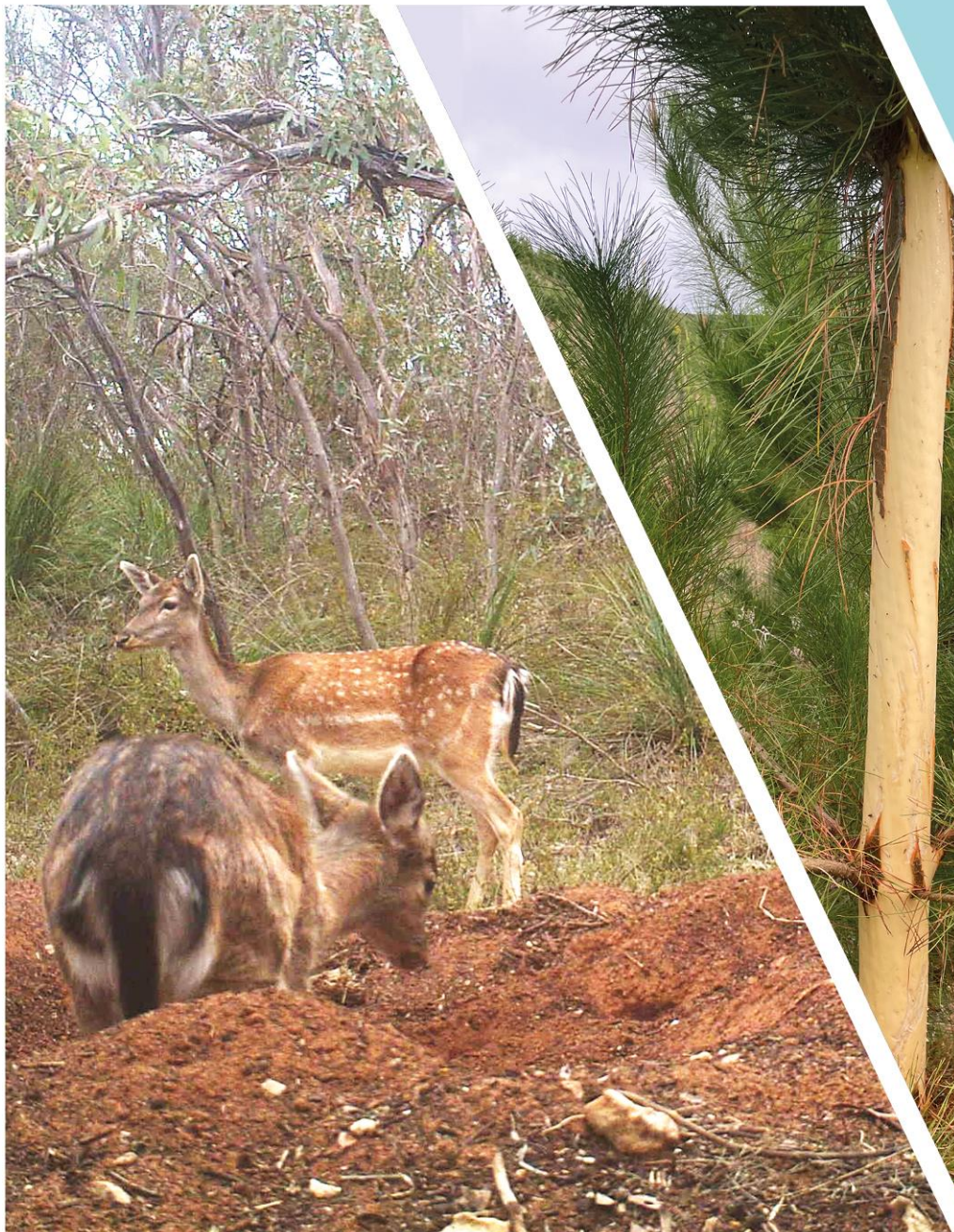


West Victoria Deer Control Plan 2023–2028



Acknowledgment

We acknowledge and respect Victorian Traditional Owners as the original custodians of Victoria's land and waters, their unique ability to care for Country and deep spiritual connection to it. We honour Elders past and present whose knowledge and wisdom has ensured the continuation of culture and traditional practices.

We are committed to genuinely partner, and meaningfully engage, with Victoria's Traditional Owners and Aboriginal communities to support the protection of Country, the maintenance of spiritual and cultural practices and their broader aspirations in the 21st century and beyond.



West Victoria Deer Control Plan 2023–28

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1 Introduction

1.1 PURPOSE OF THIS PLAN

The West Victoria Deer Control Plan (the Plan) is one of three Regional Deer Control Plans developed under the Victorian Deer Control Strategy (VDCS) by the Department of Energy, Environment and Climate Action (DEECA), complementing the Peri-Urban Deer Control Plan 2021-2026 and East Victoria Deer Control Plan 2023-2028. Collectively, these plans support implementation of the Victorian Government's deer control program in partnership with community, including representative groups and organisations, Traditional Owners, industry, local and federal government.

The purpose of the Plan is to guide deer control and management actions in western Victoria from 2023-2028 by identifying priority areas to prevent or minimise the impact of deer on our environmental, cultural, social, and economic values. The Plan does not prescribe detailed site-specific control measures. These will be developed and implemented collaboratively between agencies, First Nations and community partners identified within the Plan.

Traditional Owners have a deep understanding of the land and its cultural significance. Their input is invaluable in identifying areas of particular importance and in developing strategies for protecting Country from the impacts of deer.

1.2 SCOPE

The scope of this Plan is western Victoria (using the Hume Freeway as the eastern boundary) and excludes peri-urban Melbourne. A map showing the boundaries of the three regional plans is provided in Figure 1.

1.3 VISION

The vision for this Plan is aligned with the goals of the VDCS (Figure 2). Actions that underpin the achievement of each goal are outlined in subsequent sections.

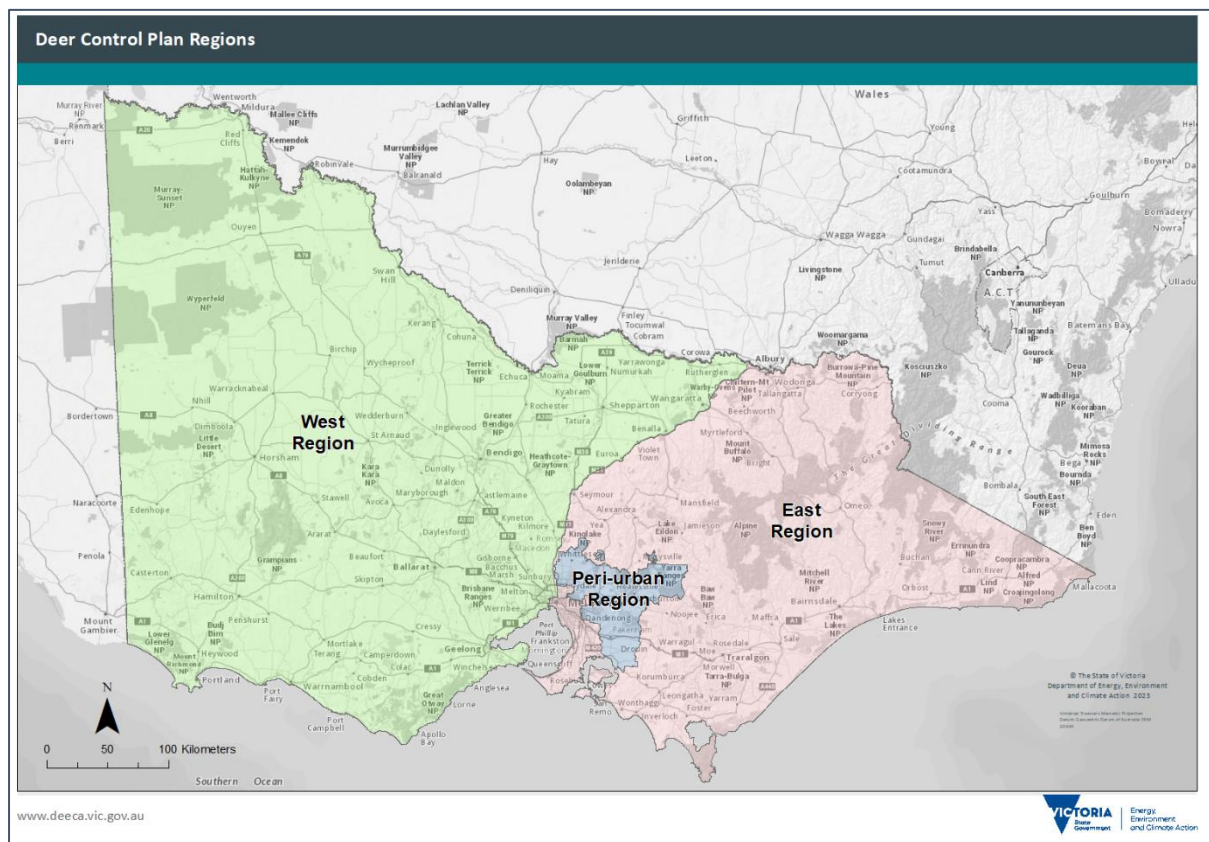


Figure 1. Deer control plan regions

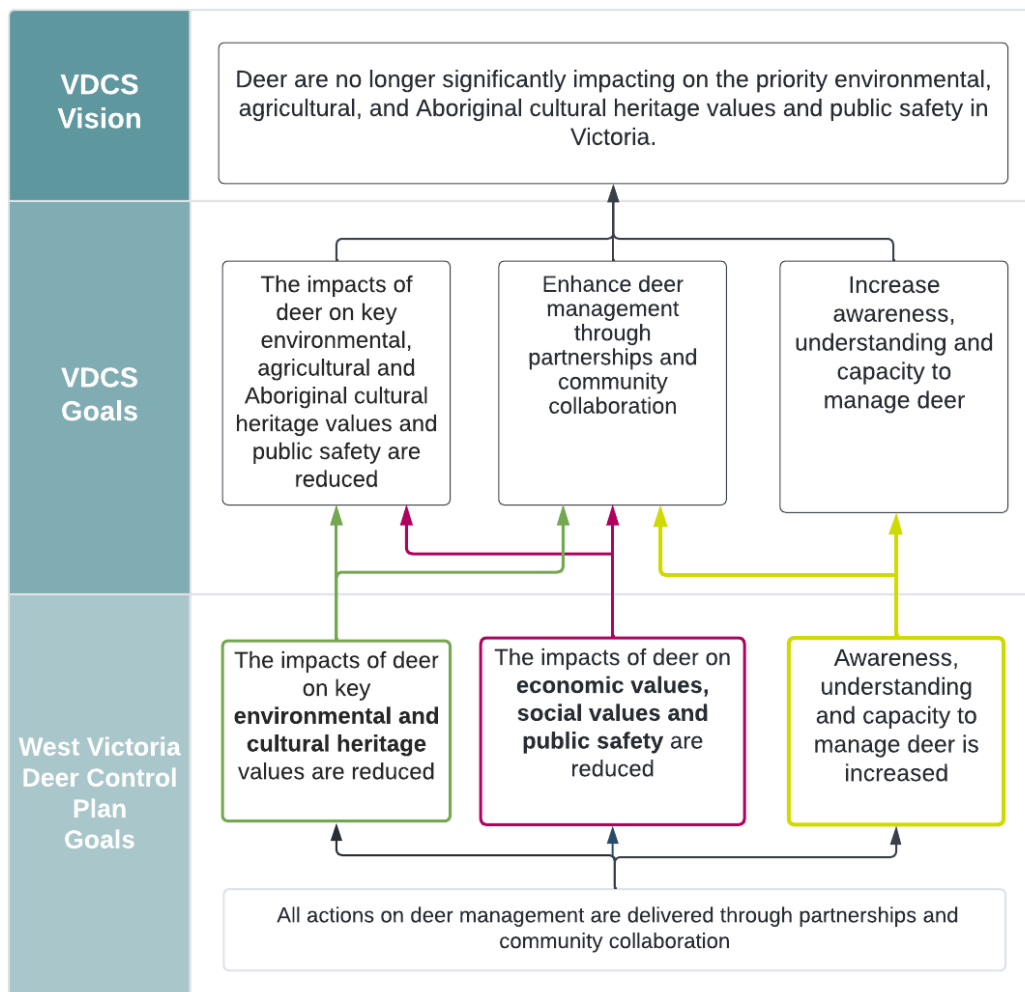


Figure 2. Alignment of West Victoria Deer Control Plan goals with those of the Victorian Deer Control Strategy

1.4 BACKGROUND

In 2020, the Victorian Government released the VDCS to guide deer management actions to reduce their impacts across Victoria. The strategy provides the Deer Control Framework (Figure 3) to guide coordination, strategic planning and adaption of approaches to managing the impacts of deer.

The VDCS allows for the development of regional five-year plans facilitated by Regional Deer Control Partnership Groups (partnership groups) established by the Victorian Government. The regional plans identify priority locations for deer control work throughout Victoria. The partnership groups, comprised of local stakeholders involved and interested in managing deer impacts, will also play a key role in the coordination and implementation of their respective Regional Plans.

The VDCS also allowed for the establishment of the Deer Advisory Committee, comprising government and non-government members responsible for providing information and expert advice to DEECA to support the implementation of the VDSC including development of the Regional Plans.

1.5 APPROACH TO DEVELOPING THE PLAN

The West Victoria Deer Control Plan was prepared in consultation with the Western Regional Partnership Group. The group provided regionally specific context for the development of the Plan.

Representatives from public and private land managers, local government, conservation, industry, Traditional Owners and community groups participated in a series of four workshops to support the development of the Plan, with the Deer Advisory Committee also invited to contribute.

The four workshops focused on:

- The general approach to the Plan's development, including governance and alignment of its aims to the VDCS
- Collection of information on current distribution of deer and their impacts to values
- Identification of principles for deer control and management actions, and priority locations, with consideration of environmental, cultural, catchment,

and economic assets, and social values, including public safety. Locations were nominated for prevention, local elimination, containment, or asset protection, in line with the Biosecurity Approach outlined within the VDCS (Figure 4).

- Confirmation of priority locations, justification for their nomination, and identification of key actions.

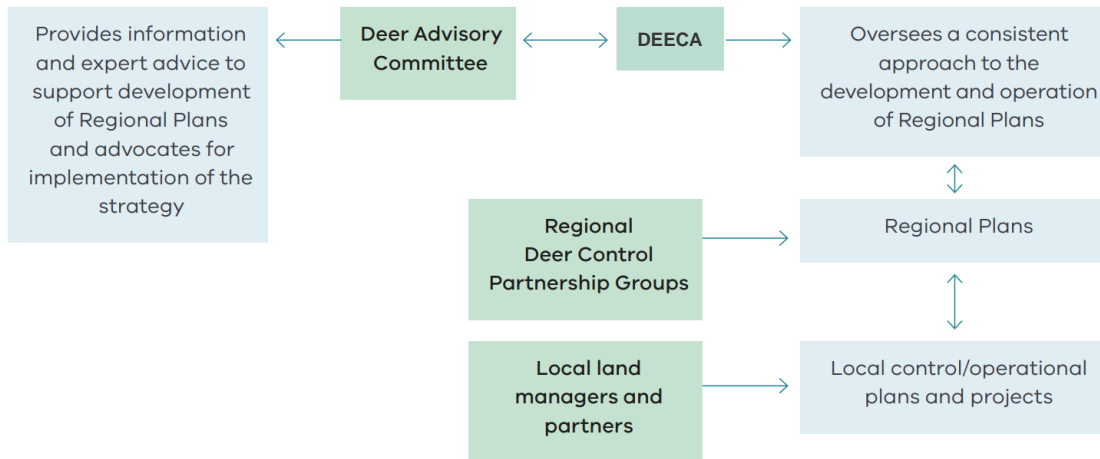


Figure 3. Deer Control Framework under the Victorian Deer Control Strategy

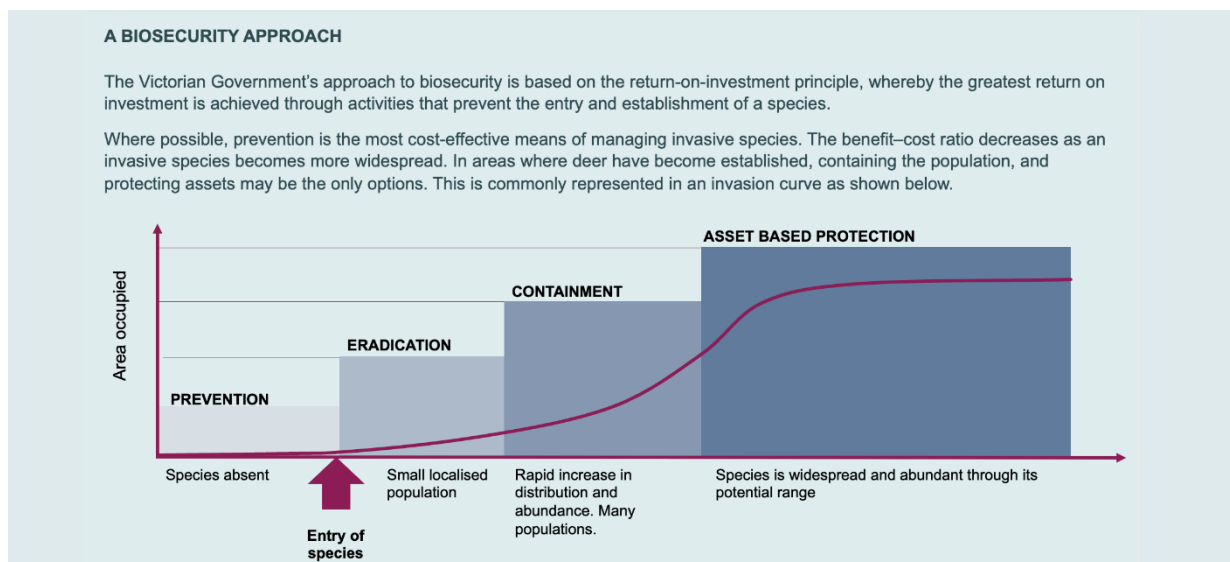


Figure 4. The Biosecurity Approach (Department of Environment and Primary Industries (DEPI) 2017)

PLAN ASSUMPTIONS

These assumptions underpin the design and delivery of this Plan:

- Deer management is a shared responsibility involving public and private land managers, Traditional Owners, conservation and community groups, the agricultural sector, water and catchment management authorities, the commercial deer industry, hunting organisations, recreational hunters, the community and all tiers of government.
- Our knowledge of deer in Victoria is incomplete, however, there is sufficient evidence on their impacts to act now.
- Deer management actions are to be delivered through partnerships and community collaboration across different land tenures where possible.
- Stakeholders share many views in relation to deer management, with differing views acknowledged and welcomed as a reflection of the many different partners who need to be involved to achieve the Plan's objectives.
- Deer control requires a coordinated and integrated approach that is supported by scientific research, collaboration, information sharing and evidence-based planning, where on-ground actions support data collection and evaluation.
- Deer control is targeted and managed to ensure human safety.
- Deer control is compliant with relevant laws and regulations, including animal welfare.
- Government investment in deer control will be consistent with the biosecurity principles within the VDCS and guided by *Biodiversity 2037*, including Strategic Management Prospects (SMP) and other contemporary approaches to managing Victoria's biodiversity, whilst complementing the National Feral Deer Action Plan as part of a national approach to deer control.
- Whilst biodiversity values are the highest priority for protection against deer impacts based on current investment, consideration of multiple values including cultural, economic and social (including public safety) contribute to prioritisation and decision making.
- Deer control needs to be strategic, cost-effective, and adaptive.
- Recreational hunting contributes to the overall reduction of deer abundance and has social and economic benefits, however, is not sufficient on its own to achieve the objectives of the Plan. It should be considered when deer control or management activities are planned and undertaken, including opportunities to engage with Sporting Shooters Association of Australia (SSAA) and the Australian Deer Association (ADA) for coordinated control activities across tenure.
- Whenever possible, community-led action should be enabled and supported.
- Traditional Owners should identify aspirations for management of deer on Country, including for the protection of values from impacts by deer.

1.6 PARTNERING WITH TRADITIONAL OWNERS

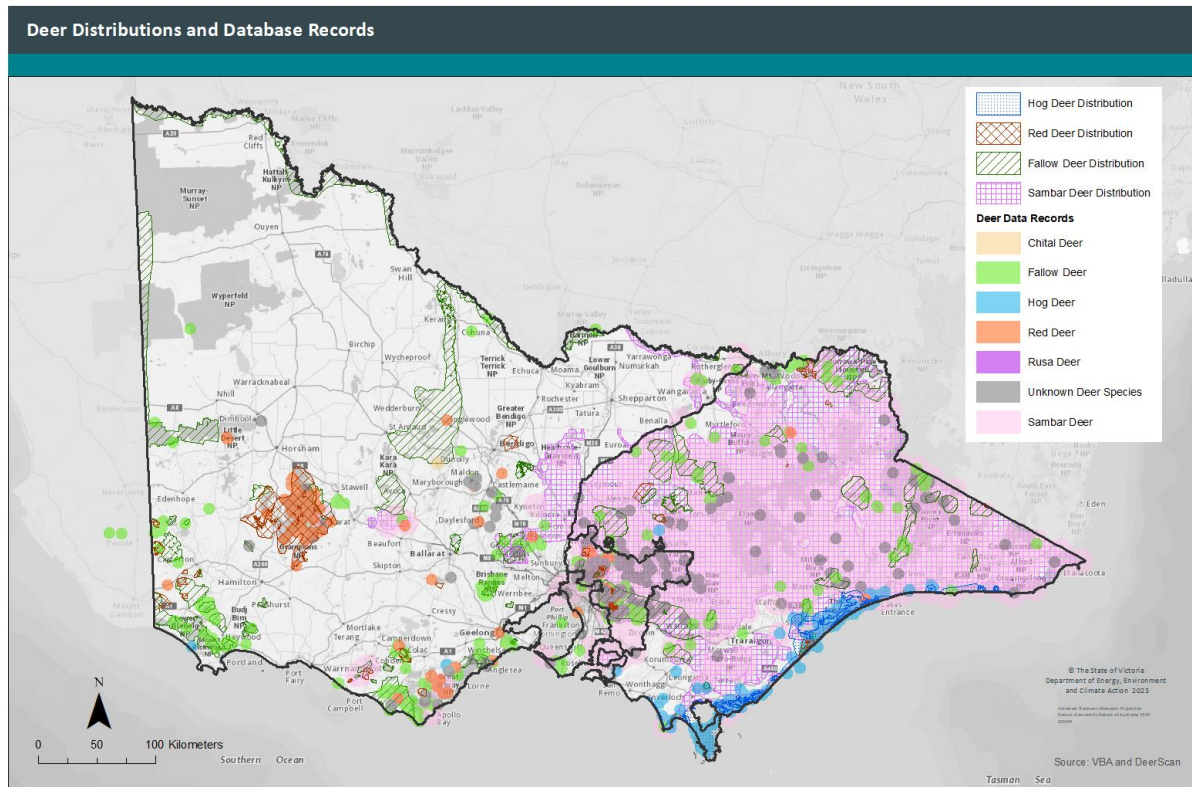
The Victorian Government is committed to Aboriginal self-determination and enabling Traditional Owners to be at the centre of decision-making around the issues that directly affect their aspirations and obligations for the management of Country. In practice, this involves relevant land management agencies partnering with Traditional Owners to support these aspirations, including the building of capacity and capability to do so, whilst focusing deer monitoring and control activities on the protection of Aboriginal cultural and natural heritage values on Country as guided by Traditional Owners. This will ensure that any monitoring and control activities are carried out in a way that respects and protects Aboriginal cultural and natural heritage values on Country.

First Nations communities and Traditional Owner Corporations are encouraged to reflect their aspirations for the management of deer on Country, including to guide control activities for deer where they are impacting on values aligned to Country Plans.

This plan is a living document and will be revised regularly to enable Traditional Owner values, priorities and insights to influence its content and guide decision making for the management of deer on Country over time.

Formally recognised Traditional Owner groups currently in the Plan area are: Barengi Gadjin Land Council; Dja Dja Wurrung Clans; First People of the Millewa Mallee; Gunditj Mirring Traditional Owners; Taungurung Land and Waters Council; Wadawurrung Traditional Owners; Wurundjeri Woi Wurrung Cultural Heritage; and Yorta Yorta Nation Aboriginal Corporations.

2 Deer in western Victoria



www.deeca.vic.gov.au



Figure 5. Deer species distribution and recent community records of deer

2.1 DEER IN THE LANDSCAPE

Deer were introduced into Australia for game hunting purposes between 1860 and 1880. Four species of deer have established populations in the wild in Victoria: Fallow Deer (*Dama dama*), Hog Deer (*Axis porcinus*), Red Deer (*Cervus elaphus*) and Sambar Deer (*Rusa unicorn*). Modelling suggests that Red and Fallow Deer have an extremely wide predicted distribution in Victoria. It is unknown what the combined populations of deer are in Victoria, however, unconfirmed estimates suggest it could range from several hundred thousand up to a million (DELWP 2020).

The distribution of deer throughout western Victoria is not comprehensively documented, however, Fallow, Red, and Sambar deer are all known to occur there.

Based on modelling of known deer breeding records, Fallow deer have a widespread yet disjunct distribution through the region. Red deer primarily occur in and around the Grampians National Park, with several dispersed populations in the south and east of the region. Sambar deer are currently known only to occur in the eastern part of the region.

With Sambar deer widely distributed throughout eastern Victoria, there is potential for this highly adaptive species to continue their dispersal west. There is also a risk of new deer species, such as Chital and/or Rusa deer moving into the region from South Australia.

Wapiti deer have been sighted in Lerderderg State Park and near Stawell, and hybridisations of Rusa and Sambar have been confirmed where their distributions overlap. Hog deer are also appearing in the Otway Ranges.

Deer tend to move through the region's forested areas, including along riparian corridors and through remnant vegetation across all tenures. They are known to disperse where available habitat is contiguous across the state borders with South Australia and New South Wales. Although modelling indicates that deer have the potential to spread across the entire region, there is an opportunity to prevent the further spread of species into new areas in the state's west, and reduce the impacts of deer where they currently occur.

Current reporting of locations of deer largely conform to the known distributions of the breeding range of each species (Figure 5). Most records within key databases, including DeerScan, iNaturalist, Victorian Biodiversity Atlas (VBA), appear biased towards populated areas where proximity

and access to forested habitat allows for more frequent observations and likelihood of reporting. As such, fewer records stem from remote habitats favoured by some species. Observations of female deer are required for confirming potential expansion of the breeding range as males are often recorded outside their known range due to the higher dispersive movements typical of male deer. This highlights the need for greater reporting of deer observations, especially females, and their impacts to improve knowledge of current deer distributions and better inform management decisions.



Figure 6. Deer tree rubbing and stripping at Mortlake Common – Lisette Mill

2.2 LEGAL STATUS OF DEER

Hog, Red, Sambar, Fallow, Rusa, Chital, Sika and Wapiti deer are protected wildlife under the Victorian *Wildlife Act 1975*. Hog, Red, Sambar, Fallow, Rusa and Chital Deer are also defined as game, which means they can be hunted by licensed game hunters.

With the exception of Hog Deer, all other species of deer are unprotected on private property in Victoria and can be controlled by the property owner where they are causing damage. This does not require a Game Licence or an Authority to Control Wildlife (ATCW) permit under the *Wildlife Act*, where it is in accordance with conditions set out in the Unprotection Order under the *Wildlife Act*.

Similarly, public land managers can also control deer without an ATCW, in accordance with the conditions of an Order made under the *Act* on 19 October 2022. This applies only where deer are causing damage or posing a risk to the health or safety of any person/s on all public land, however, Hog Deer can only be destroyed with an ATCW on private

land and public land managed under the *National Parks Act 1975*.

A range of legislation needs to be considered when controlling deer, including:

- *Wildlife Act 1975*
- *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth)
- *Flora and Fauna Guarantee Act 1988*
- *National Parks Act 1975*
- *Conservation, Forests and Lands Act 1975*
- *Aboriginal Heritage Act 2006*
- *Catchment and Land Protection Act 1994*
- *Firearms Act 1996*
- *Prevention of Cruelty to Animals Act 1986*



Figure 7. Fallow deer in grazing land - Simon Feillafe

2.3 LAND USE IN WEST VICTORIA

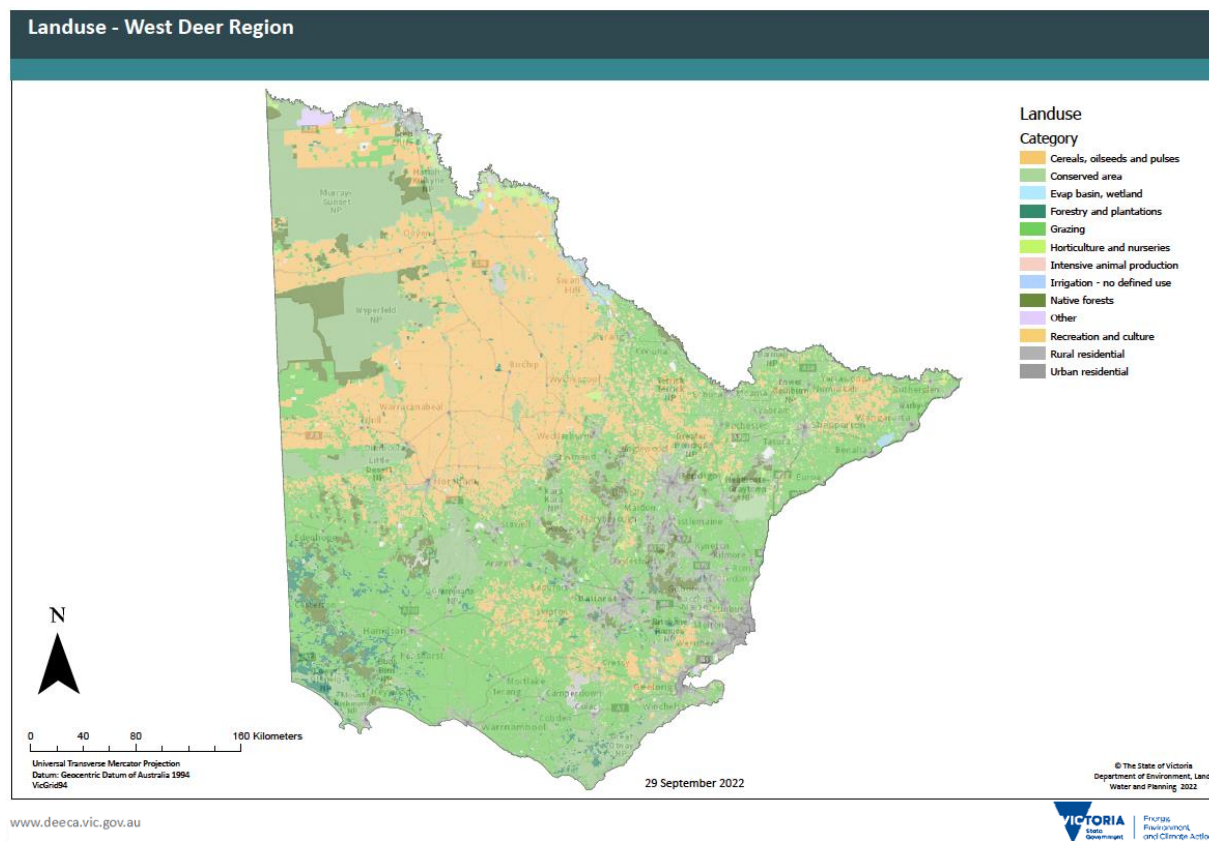


Figure 8. Land use map of western Victoria (ABARES 2016)

Western Victoria includes Victoria's three largest regional cities of Geelong, Bendigo and Ballarat and a range of diverse landscapes and tenures, all of which are vulnerable to impacts from deer. A land use map of the west region is provided in Figure 8 (ABARES 2016).

The planning area is recognised for its contrasting coastal and arid landscapes from south to north, vast agricultural interests of cropping and livestock, extensive softwood and hardwood plantation forestry, and its diverse and iconic landscapes for nature-based tourism which include the iconic Great Ocean Road, Grampians National Park and the Murray River.

The private agricultural land in the region is mostly utilised for cropping and grazing enterprises (70%) and includes horticulture which primarily occurs along the Murray River corridor. Viticulture is also an important industry in the region, with several localities recognised for their vineyards and wines within the planning area. Agricultural lands that are frequently affected by deer tend to be those that are adjacent to denser vegetation cover, regardless of tenure.

There are several large and many smaller national parks forests and reserves which comprise of 18% of the highly fragmented planning area. These include Murray-Sunset, Wyperfeld, Grampians and Greater Otway National Parks, as well as several Ramsar sites, wetlands and Heritage Rivers also protected under international conventions, Commonwealth or State legislation for their environmental,

cultural and / or social values. This includes Budj Bim National Park recognised on the UNESCO World Heritage List for its Aboriginal cultural values.

Extensive areas of hardwood and pine plantations also occur throughout the south-west of the region, covering 7% of the planning area.

Areas of public forested lands, plantations and significant areas of private bushland are often linked by extensive networks of riparian corridors associated with the region's river catchments flowing both north and south of the Great Dividing Range, and its mostly ephemeral streams across its vast and mostly fragmented landscape. These forests, bushlands and plantations across private and public lands are often linked by remnant riparian corridors, which provide cover and support the movement of deer across it.

The Great Dividing and Otway Ranges are watersheds for domestic water supply for local communities, as well as the region's cities and larger centres. Protection of catchments and riparian environs is important for drinking water and protection of threatened communities and species.

2.4 IMPACT OF DEER

Deer can have negative impacts on biodiversity, cultural values, agriculture and public health, especially where they occur in high densities.

Under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) 'herbivory and environmental degradation caused by feral deer' is a key threatening process. Similarly, 'reduction in biodiversity of native vegetation by sambar deer' is listed as a Potentially Threatening Process under the Victorian *Flora and Fauna Guarantee Act 1988* (FFG Act).

BIODIVERSITY

There are significant biodiversity values located throughout the region on both private and public land. Negative impacts of deer on biodiversity are mainly caused by herbivory (browsing and grazing), antler rubbing (Figure 6Figure 6) and thrashing, trampling and wallowing. This can reduce plant growth, survival, and reproduction of individual species, whilst also altering the structure and composition of an ecological community, having severe consequences for threatened fauna and vegetation communities, particularly where they are spatially restricted or preferentially used by deer.

For example, grazing and disturbance by deer to Tall *Astelia* (*Astelia australiana*), vulnerable under the EPBC Act and endangered under the FFG Act, which occurs in Cool Temperate Rainforest dominated by Myrtle Beech (also at risk of impact by deer), has the potential to significantly impact the species within its highly restricted distribution (Cutler & Murphy 2010).

Endangered Malleefowl are also at risk from deer, with Fallow Deer known to trample nesting mounds.

Protecting Victoria's Environment – Biodiversity 2037 is Victoria's plan to stop the decline of our native plants and animals and improve our natural environment. It is underpinned by decision support tools including Strategic Management Prospects (SMP). SMP is used to help prioritise investments and biodiversity management actions to achieve the most cost-effective benefits in line with *Biodiversity 2037* targets. SMP modelling suggests that over a thousand species of flora and fauna would benefit from deer control efforts across Victoria. (www.environment.vic.gov.au/biodiversity/natureprint)

Uncertainty remains about the risk of deer contributing to the spread of cinnamon fungus, also known as root rot (*Phytophthora cinnamomi*), Myrtle Rust (*Austropuccinia psidii*), and amphibian chytrid fungus (*Batrachochytrium dendrobatidis*), warranting further investigation. Deer have been shown to be vectors for weeds though, contributing to their spread through dispersal of seeds in their faeces and regurgitation of seeds, and through soil disturbance leading to weed establishment.

CULTURAL HERITAGE

Deer can have a significant impact on cultural assets in western Victoria, with their presence in certain areas impacting the cultural significance of archaeological and culturally sensitive sites of the Traditional Owners of

western Victoria. Caring for these sites may include physical care such as monitoring, protection and maintenance, as well as ceremonies and rituals. This helps to process the trauma of colonisation that still affects First Nations communities and ensures the memories of their ancestors are honoured and respected.

Consultation with Traditional Owners is critical when considering any activities or developments that will impact Country. This will ensure that any deer control activities are carried out in a way that is respectful of Indigenous cultural practices and beliefs, and that any potential impacts on cultural heritage is minimised. First Nations-led deer control activities will ensure the cultural and spiritual significance of Country is considered when implementing actions under the Plan.



Figure 9. Gunditj Mirring Traditional Owners and Winda Mara Aboriginal Corporations monitoring Manna Gum recruitment at the Allambie Indigenous Protected Area within the Budj Bim Cultural Landscape - Prudence Raine

WATER

The impact of deer on waterways is mainly from pugging, wallowing and herbivory in riparian zones. This can have impacts on water quality in the immediate vicinity and downstream through sedimentation, water turbidity and bank erosion.

Deer in high densities can also pollute drinking water sources. Parasites such as cryptosporidium and giardia, as well as zoonotic diseases like Q-fever resulting from faeces decomposition near water sources, and these parasites and diseases all affect human health (Hampton and Davis 2020). Although it is a risk, detailed analyses by Melbourne Water with the University of Melbourne suggest the risk is not significant, with monitoring confirming the presence of cryptosporidium in approximately 2.2% of 11,000 scat samples, and mostly of non-human infectious genotypes. This long-term data set is used to support the maintenance of Melbourne Water's unfiltered water supply status (Haydon et al 2022).

ECONOMIC

Deer across Victoria have caused damage to agriculture, infrastructure (e.g., fencing and trellises), native timber harvesting and forestry plantations, including their regeneration by browsing, stripping, and rubbing.

Landholders have reported damage specifically to pasture, fruit, grapevines, vegetables (especially potatoes), pine and hardwood plantations, as well as flower and foliage growing operations. Whilst damage from deer is most commonly seen on agricultural land close to habitat (bushland), it can extend much further.

Deer are also vulnerable to emergency animal diseases (EAD) including foot and mouth disease, which have the potential to cause devastating impacts on animal, human and environmental health, and have the potential to act as disease reservoirs. If an EAD was detected within Victoria, Agriculture Victoria is the biosecurity control agency and responsible for initiating the Emergency Animal Disease Response Agreement with relevant industry, state and federal government partners (Agriculture Victoria 2022).



Figure 10. Pine bark stripping by deer at HVP softwood plantation – Amy Kirk, HVP

Research is also underway to determine whether deer can spread pests, viruses and parasites such as liver fluke (*Fasciola hepatica*), to farmed grazing animals (Hampton and Davis 2020, Frontier Economics 2022). Whilst the magnitude and extent of this risk is not well understood, Victoria is currently contributing to the national study led by the Centre for Invasive Species Solutions.

A recent report into the economic, social and environmental impact of deer in Victoria estimated deer could cost between \$1.5 to \$2.2 billion over the next 30 years, without effective control of rising deer numbers (Frontier Economics 2022). The report analysed economic costs of lost gross margin due to deer grazing on farmland, resources spent managing deer by land managers, lost forestry production, deer-related vehicle accidents and social costs of reduced recreation values.

SOCIAL

Rural communities have reported deer damaging private gardens and presenting public safety issues when they become established and conditioned to urban areas. When deer first appear in peri-urban locations, there is potential for them to be seen as a 'novelty' or considered a valued part of the local wildlife by residents and visitors. This can complicate the ability to undertake effective deer control in these regions.

Vehicle collisions involving deer have also been increasingly reported, particularly in areas where optimal deer habitat is adjacent to highways and main arterial roads. In western Victoria, this includes roads near the Grampians National Park and the Forrest-Apollo Bay Road, with recent observations also along the Western Highway.

Whilst data on vehicle collisions caused by deer is limited and incomplete, there have been attempts by State Government agencies and insurance companies to quantify the impacts (Ang et al 2019, AAMI 2022). While kangaroos and wallabies significantly account for most collisions involving an animal, and collisions involving deer are less frequent, they may have greater potential for serious human injury due to their larger size.

Frontier Economics (2022) estimate the economic cost of deer-related vehicle accidents will be between \$576 to \$825 million over the next 30 years in Victoria, being the greatest economic cost to the community identified in the report.

RECREATIONAL HUNTING

While deer can have negative impacts on our landscape, there are some social and economic benefits from hunting. A 2020 analysis estimated that recreational deer hunters who held a Victorian Game Licence made a gross contribution of \$201 million to the Victorian economy (Department of Jobs Precincts and Regions (DJPR) 2020). This contribution comprises both direct expenditure and indirect or flow-on economic activity. A significant proportion of that expenditure occurs in metropolitan Melbourne and eastern Victoria where recreational hunters are most likely to reside or undertake the activity.



Figure 11. Deer rub on forest sign – Stefan Kaiser

2.5 CHALLENGES OF MANAGING DEER

Sambar, Fallow, Red and Hog deer are well established in Victoria. Rusa, Chital, Sika and Wapiti Deer are either not widespread or yet to be established in the wild therefore, prevention of their establishment is a high priority.

In western Victoria, areas remain where deer are not fully established, particularly in the northwest. This further emphasises the importance of preventing their establishment. Management options must also consider the scale of action that is required to have an effective outcome. As deer can travel large distances, control efforts need to consider their movements within their home range or landscape which will often mean coordinated actions are required across large areas, including across tenures on public and private lands.

Effective methods for control of deer are limited to aerial shooting by professional controllers, or ground shooting by professional shooters, volunteer hunters, or commercial harvesters.

A significant number of deer are harvested by recreational hunters each year, with 119,000 reported in 2021-2022 alone, however deer abundance and their impacts to biodiversity values continue to increase in areas where recreational hunting remains popular, confirming that recreation hunting is not enough to reduce deer populations on its own.

Aerial shooting can be useful to cover large areas, targeting deer quickly and efficiently, particularly in remote and difficult to access areas, and has been widely used in the west of the state for many years in controlling populations of feral goats. This tool has been used within Grampians National Park for deer control and now also occurs at other locations including Budj Bim.



Figure 12. Red Deer at a wallow in the Otway Ranges – Conservation Ecology Centre

As deer populations grow, riparian and other vegetation corridors that link larger remnant patches allow deer to move across the landscape, regardless of tenure. Although these pathways make prevention of new incursions and elimination of existing populations difficult, remnant islands of vegetation and pinch points along corridors can be used

to focus control efforts, restrict access or eliminate local populations, occasionally in combination with fencing.

In other areas, control objectives must take an asset protection approach to manage deer populations at a local level and reduce impact on particular values, be it ecological, cultural or economic.



Figure 13. Deer exclusion fence allowing movement of small animals - Amy Kirk HVP

Deer exclusion fencing may also be an option in some circumstances, however, because of its cost this may only be viable for small-scale high value assets (e.g. viticulture, horticulture and sensitive biodiversity).

While the use of fences and guards may protect high value assets in a particular area, they can also result in the dispersal of those impacts as deer are diverted elsewhere. To ensure that deer fencing does not affect native animal movement, potentially impacting recruitment and dispersal, fences can be designed to exclude deer but allow native animals such as wombats, wallabies and kangaroos to pass, with adaptations made, where required, to also exclude feral pigs.

Control options available to manage deer also become more challenging in areas more densely populated areas or subject to high visitation (e.g. Halls Gap,) where options for safe use of firearms may be limited. The range of land tenures and higher density of housing adds to the complexity of implementing safe coordinated deer control operations. Further information on deer control in peri-urban type locations can be found in [Guide to Deer Control in Peri-urban Areas](#).

2.6 RECENT DEER CONTROL WORKS

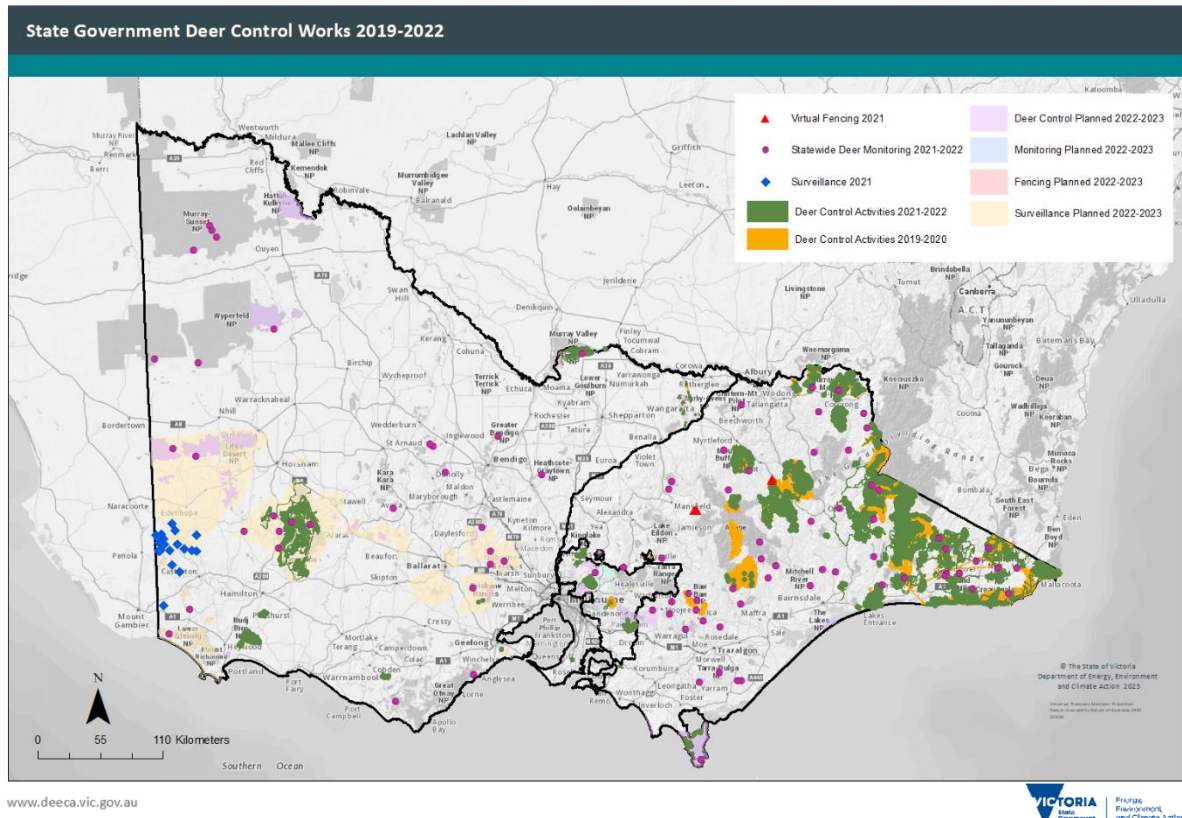


Figure 14. Deer control works undertaken by State Government agencies in Victoria 2019-2022 and planned for 2022-2023

Below is a summary of recent deer control works by government agencies, non-government agencies, private landholders, businesses, community groups and associations

State government deer control

In recent years, Victorian Government agencies have undertaken deer control works across the state, with the vast proportion occurring in areas affected by the 2019-2020 Black Summer bushfires in eastern Victoria. These operations had a particular focus on protection from the impacts of introduced hard hooved herbivores of sensitive regenerating threatened ecological communities, and the species which inhabit them.

The 2019-2020 bushfire biodiversity response emergency aerial shooting program reported that deer abundance and density had reduced by 50% within the 255,992 hectares of priority habitat assessed in north-eastern Victoria, with approximately 700,000 hectares treated in total during that time. (Note that a specific hectare can be treated multiple times within the time period.) Figure 14 shows some of the recent control works undertaken by State Government agencies since the 2019-2020 bushfires.

Deer control work in the west has primarily occurred on Parks Victoria managed estate, including the Grampians National Park, Budj Bim World Heritage Landscape

including the National Park and Indigenous Protected Areas, and Barmah Forest Ramsar site.

The DEECA Deer Control Program commenced control actions in priority areas during 2020 immediately following the Black Summer bushfires, which coincided with the release of the VDCA, and prior to the release of the Regional Deer Control Plans. Actions included surveillance to detect incursions of *Rusa* deer in and around Dergholm, on-ground and aerial control programs at sites where data confirmed impacts on high biodiversity values, fencing to protect threatened flora from deer browsing, training of staff and volunteers in recognising signs of deer, installation of virtual fencing devices (ultrasonic sound and flashing light) to reduce deer-vehicle collisions, and establishment of a statewide camera and vegetation monitoring project to support long term deer population modelling.



Figure 15. Virtual fencing sign and device- David Pasztaleniec

Deer control by private landholders, non-government organisations, and hunting groups

There have also been deer control works on private property, including forestry plantations and farmland in western Victoria. This is often undertaken by the property manager and has also utilised local volunteer shooters with some coordinated through community action groups (e.g. around Black Range) providing good examples of how working together, including with industry, has positive benefits.

In addition, the Australia Deer Association (ADA) and Sporting Shooters Association of Australia (SSAA) have worked with non-government organisations, private landholders, and government agencies to undertake deer control works across private property, in peri-urban areas and in more remote regions. These works are not represented on the map shown in Figure 14 but are important to acknowledge.

Commercial Deer Harvesting

Some private and public land managers have been utilising commercial harvesters for the control of deer. These professional contractors may provide free or subsidised services for the removal of deer as their income is made through supply of carcasses to meat processing facilities. The deer is then used as pet food, for human consumption as venison, or for other by-products.

Deer harvested by recreational hunters holding a game licence

Information about the number of deer harvested by recreational hunters may be used to inform decisions about deer control activities and the management of hunting on public and private land in Victoria. Research conducted by the Game Management Authority (GMA) estimated an average of 76,415 deer are taken by recreational hunters across Victoria each year¹, with an average of 2.55 deer harvested and 6.75 days of hunting annually by each game licence holder (Moloney & Flesch 2020). From 2013 to 2019 deer harvested per year increased from 43,985 to 173,784, however this dropped significantly in 2020 due to Covid-19.

The latest data from the GMA estimates an annual take of 119,000 deer for 2020-2021, 49% above the long-term average. Sambar Deer were the most harvested species with 68,916 taken, followed by Fallow Deer 35,351, with similar proportions of females taken for both species at approximately 57%. The number of licenced recreational deer hunters in 2021 was 49,857, the most recorded to date and a 20 per cent increase from 2020.

Whilst it is acknowledged that recreational hunting can contribute to a reduction in deer numbers in places, it cannot address all deer management objectives in isolation as it is not strategically coordinated to focus on areas which provide the greatest benefit to specific biodiversity or other values.

There are existing opportunities through SSAA's [Farmer Assist](#) and [Conservation and Pest Management](#) programs, as well as the ADA's [Deer Management Program](#) to utilise skills of accredited volunteer shooters to participate in strategic control programs on Parks Victoria estate and on private land. Recreational hunters could be guided to focus their efforts in areas complementing existing or adjacent control programs where hunting is permitted, providing larger areas of coordinated cross-tenure control actions. Such complementary activities could be led by the Game Management Authority and recreational hunting and shooting organisations.

¹ Average is calculated based on reported deer taken from 2009-2020

3 Setting priorities for deer control in western Victoria

3.1 GENERAL APPROACH

The approach to setting priorities for deer control in western Victoria has been based on identifying assets or locations where deer negatively impact environmental, economic, and social values.

A combination of peer-reviewed science, government strategic planning and policy, and input from partnership group members was used to identify and justify the specific values warranting protection within the Plan.

For each value, several factors were used to determine their priority:

- Alignment with *Biodiversity 2037* and with DEECA's SMP.
- Conservation status of environmental values listed under EPBC Act and FFG Act, including those that may apply to lands (Heritage Rivers Act 1992, National Parks Act 1975), and conventions International Union for Conservation of Nature (IUCN) Green List, World Heritage Listings and Ramsar sites of international importance) where deer are identified as a risk to the listed value.
- Land conservation status where legislative requirements or agreements on private property include obligations to manage introduced animals.
- Cultural significance as guided by Traditional Owners and the Aboriginal Heritage Act 2006 and Aboriginal Heritage Regulations 2018.
- The biosecurity approach where prevention and early intervention (local elimination and containment) where practical, are generally higher priorities for investment where practical due to their likely cost-effectiveness (compared to asset protection).
- Areas where deer populations overlap with Joint Managed lands, or where existing investment from government or community action, major environmental restoration projects, and existing control programs occur in priority areas.
- Where benefits for multiple values can be realized (e.g. environmental and economic).
- Where return for effort can be maximised (e.g. integrated pest control programs and continuity of existing, successful control programs).

It is expected that locations where Aboriginal cultural and natural values are negatively impacted by deer will be identified and prioritised for control activities where consistent with existing partnership arrangements and aspirations on Country where complementary to activities identified in this Plan.

3.2 SPECIFIC PRIORITIES VERSUS PRINCIPLES

By working with the Regional Deer Partnership Group, it has been possible to identify a set of specific environmental values and locations that are threatened by deer. This was possible because there was sufficient evidence (quantitative and qualitative), legislative and policy guidance (e.g. VDCS, *Biodiversity 2037*, SMP, EPBC and FFG Acts, National Parks Act) to identify specific values and locations. This is reflected in Goal 1 of this Plan, where the list of specific priority environmental values is presented.

However, the partnership group also determined that it was not appropriate to include specific locations for economic or social values. The main reasons for this were:

- The partnership group agreed that it would be too complex to prioritise any one type of farming or business enterprise ahead of another. Any deer impacts on those operations were considered of concern.
- Data on social values or safety issues is not sufficiently detailed to show definitively that deer impacts were more important in one location ahead of another. For instance, deer collision data is not detailed enough to support action in one location as a priority over another.
- The Plan is intended to be inclusive and to support any group of land managers (public/private) or community organisations to initiate deer control in their area.

Because of these concerns and needs, the Plan does not define specific priorities among different primary producers or different communities across western Victoria. Instead, a principles-based approach is proposed, with the aim of supporting collaborative and coordinated deer management across tiers of government, private landholders and the community.

4 Implementation plan

4.1 GOAL 1: THE IMPACTS OF DEER ON ENVIRONMENTAL VALUES AND CULTURAL VALUES ARE REDUCED

PRINCIPLES FOR ACTION

Deer can have significant impacts on environmental and cultural values, which tend to increase with deer population densities, but may also vary according to vegetation type and species behaviour. To minimise these impacts, this Plan sets out a list of the priority areas and values, whilst identifying the purpose of deer control in those areas. The Plan also provides guidance on how priority areas were established, to help guide future management actions.

SMP mapping of the cost-benefit of deer control has contributed to determining environmental priorities within this Plan and is intended to guide Victoria's biodiversity investment. The current version of SMP (version 3) only considers deer control on public land, so other factors have influenced Plan priorities on private land. These include habitat and biodiversity values, and cost effectiveness of control on private / public interfaces. These multiple variables will also guide future deer control investment.

The following principles for prioritising actions to protect environmental and cultural values have been used during the development of this Plan. They should continue to be used when assessing whether to support deer control programs, including those initiated by communities and businesses:

- Prioritise areas where there is a legislative requirement to protect the environmental or cultural values (e.g. EPBC Act, FFG Act, Aboriginal Heritage Act, National Parks Act)
- Prioritise areas following the Biosecurity Approach - preventing deer incursions and eradicating smaller populations in isolated pockets to protect priority environmental or cultural values, before numbers are too large to manage and damage has already occurred.
- Prioritise areas where negative impacts from deer are evident on priority environmental or cultural values
- Within waterways (using Index of Stream Condition), prioritise protection of areas in good condition ('protect the best') and protection of headwaters (where appropriate) to minimise downstream impacts
- Focus control activities where it is necessary for the protection of the value (this may not necessarily be at the exact location of the value).

[Case studies 1](#) and [2](#) showcase control and monitoring works across the state, delivered across tenure where relevant, to mitigate deer impacts on biodiversity and other values.

ACTIONS

There are four actions intended to achieve Goal 1:

- 1.1 Undertake control works at priority locations.
- 1.2 Monitor deer and their impacts at priority locations.
- 1.3 Stakeholder / community engagement and education at priority locations.
- 1.4 Partner with Traditional Owners to enable self-determination for the management of Country and protection of values from impacts by deer.

These works fall into one of the following four categories:

- Prevention (of deer from establishing)
- Local elimination (of deer)
- Containment (to prevent further spread)
- Asset protection (to reduce impacts of deer).

WHAT MIGHT CONTROL WORKS LOOK LIKE?

Prevention

The aim is to prevent deer from becoming established in a specified area.

Works include ongoing education, surveillance, and rapid response to any deer incursions.

Control source populations and identify main corridors of movement to stem the access of deer into priority locations.

Local elimination

The aim is to eradicate all deer within a specified area. This may only be feasible in isolated or fenced locations which have less likelihood of deer ingress from surrounding areas.

Works include aerial and ground shooting.

Once local elimination is achieved, the management focus of the area changes to prevention.

Containment

The aim is to contain deer to a specified area.

Works include fencing, surveillance, and management around the boundaries of the area.

Maintaining lower deer densities may reduce the egress of deer (seeking new feed sources) and reduce deer impacts.

Asset protection

The aim is to protect specific high value assets from deer impacts.

PRIORITIES

Table 4-1 sets out the priorities for Goal 1 showing both values and the associated priority locations that have been identified for deer control. For each category of value, the purpose has been defined along with the potential partners who should be engaged in delivery.

Feasibility of achieving objectives, particularly those of local elimination, will depend on sufficient funding being available. State government investment decisions for programs seeking to eliminate deer from a particular area will require project proposals that clearly demonstrate the practicality and feasibility of elimination, including a rigorous cost-benefit analysis to support the proposal.

Some sites have multiple deer species present, and more than one biosecurity approach is relevant. For instance, Fallow Deer are widespread across the Cape Otway woodlands and these values have been mapped as asset protection, however small populations of Hog Deer, can be prioritised for local elimination. Targeting of new and/or isolated populations of individual species outside of their established ranges (prevention and eradication/local elimination) will always be the highest priority to prevent the spread and establishment of deer in new locations.

Many of the mapped values listed below overlap areas in the top 5% or 20% of cost-effective actions under SMP for deer control and will be prioritised for state government investment to deliver outcomes for *Biodiversity 2037*. Some of the values listed in Table 4.1 below represent ecological vegetation classes (EVCs) with broad distributions across the Plan area, and vary in quality across their distribution. Where these values are not aligned with SMP priority locations, they will be given consideration for investment where good habitat or vegetation quality can be demonstrated, and the area is harbouring deer which are impacting on significant local values.

Figure 16 shows where each priority value is located. Figure 17 shows how these values have been prioritised based on the biosecurity invasion curve principles. In practice, deer control programs may cover several priorities in each project, depending on location and project budget available.

Table 4-1: Priority values and locations

Type of value	Priority locations / EVCs	Potential partners	Explanation
Local elimination and prevention			
New deer species incursion	SA / VIC border	Parks Victoria, DEECA, Traditional Owners, community groups, private landholders	Sites for prevention and local elimination are those where deer are likely to impact on high biodiversity values if populations are left to expand in distribution and size. Current low numbers mean that impacts may not yet be evident. Chital and Rusa deer occur in South Australia and are not yet established in western Victoria, posing as additional threats to a range of significant values should they do so. Monitoring to prevent their establishment in Victoria and guide future control actions in partnership with the South Australian Department of Primary Industries and Regions (PIRSA) along the Victorian – South Australian border is warranted.
Box Ironbark Forests	Deep Lead Nature Conservation Reserve	Parks Victoria, DEECA, Traditional Owners, community groups, private landholders	This reserve includes all known populations of the Tawny Spider-orchid (<i>Caladenia fulva</i>) (endangered EPBC and FFG), as well as other endangered orchids. Includes areas in the SMP top 20% benefit cost for deer management.

Type of value	Priority locations / EVCs	Potential partners	Explanation
Box Ironbark Forests (continued)	Box Ironbark Forest of Bendigo, Castlemaine, Dunolly, Heathcote	Parks Victoria, DEECA, Traditional Owners, community groups, private landholders	Box Ironbark Forest Ecological Vegetation Class (EVC) is depleted in the bioregion. The EVC supports a range of threatened flora and fauna species. The impacts of deer are unknown for this EVC, however grazing by domestic and introduced herbivores has been shown remove or severely restrict shrub and sapling regrowth, leading to the reduction of suitable habitat for a range of fauna, including the Critically Endangered (EPBC Act) Regent Honeyeater. The goal is to prevent the establishment of populations of deer within this EVC.
	Box Ironbark Forest of Chiltern (north of the Hume Fwy)		Box Ironbark Forest EVC is vulnerable in the bioregion. The EVC supports a range of threatened flora and fauna species. Greater densities of deer are present south of the Hume Freeway; however, the Freeway and associated cyclone fence restrict deer movement to the North of the Freeway and provide an opportunity to prevent further incursions
Remnant native and riparian vegetation of north-west Victoria	Northwest region, including: <ul style="list-style-type: none"> Hattah-Kulkyne National Park (and Hattah-Kulkyne Lakes Ramsar site) Kerang Wetlands Ramsar site Wimmera River Heritage Area Murray River corridor 	Parks Victoria, DEECA, Traditional Owners, community groups, private landholders, CMAs, Trust for Nature, Water Authority	Deer are considered to be in low enough densities to manage in the area, providing an opportunity to control them before densities increase. Values in the region include: <ul style="list-style-type: none"> Hattah-Kulkyne: The lakes form a Ramsar wetland, meeting criteria relating to species and ecological communities and fish. The lakes also provide a refuge for flora and fauna in an otherwise semi-arid landscape, with 37 rare plant species recorded at the lakes. Grazing pressure from native, domestic, and introduced herbivores constrain regenerative capacity of EVCs within the site. Prevention of the establishment of deer populations within this landscape will be integral to managing grazing pressure for species such as the endangered (EPBC) Winged Peppergrass (<i>Lepidium monoplocoides</i>). Kerang Wetlands: A Ramsar wetland that meets criteria relating to species and ecological communities and waterbirds. Grazing by introduced herbivores is considered to be a major barrier to regeneration of endangered (EPBC) Buloke communities (present as semi-arid Chenopod Woodland). The Kerang Wetlands Ramsar Site Action Plan 2017-2025 lists deer monitoring and control measures as key management actions at the sites. Wimmera River: Protected under the Heritage Rivers Act 1992 for its cultural, environmental, and recreational value. Deer degrade ecosystem quality through grazing, browsing and trampling of vegetation, ringbarking trees, as well as dispersing weed seeds and enriching nutrient levels. The riparian areas are susceptible to wallowing and pugging, which can disturb significant archeological sites and impact on water quality and aquatic species habitat.

Type of value	Priority locations / EVCs	Potential partners	Explanation
Coastal native vegetation	Coastal reserves between Allansford and Port Campbell (including Port Campbell National Park)	Parks Victoria, DEECA, Traditional Owners, community groups, private landholders, Great Ocean Road Coast and Parks Authority (GORCAPA)	These coastal reserves include the Metallic Sun-orchid (<i>Thelymitra epipactoides</i>) (endangered EPBC, threatened FFG) which has disappeared from much of its former range. The location includes areas in the SMP top 20% benefit cost for deer management.
Local elimination			
Heathlands and heathy woodlands	Kara Kara National Park	Parks Victoria, DEECA, Traditional Owners, community groups, private landholders	The area contains 12 fauna refuges and nationally listed orchid species and includes areas in the SMP top 20% benefit cost for deer management. There is potential to build upon previous investment following goat control program in the area.
Coastal native vegetation	Doug Fenwick Reserve (and other bushland reserves between Peterborough and Warrnambool)	DEECA Committee of Management, Traditional Owners, community groups, private landholders, Local Government Authorities (LGAs)	There are motivated community groups active in the area and deer control in these reserves can assist in preventing deer moving further north. The first reserve to be managed can be used to prove the concept of local elimination and prevention in small, isolated bushland reserves and over time there may be potential to create a future containment line.
Stony rises woodland	Stony Rises Woodland at Mt Napier	Parks Victoria, Adjoining landholders, Traditional Owners, DEECA, Glenelg Hopkins Catchment Management Authority (CMA), community groups	Stony Rises Woodland EVC is vulnerable in the bioregion. There is potential to build on previous investment following goat control program in the area.
Local elimination (greater than 5 years to achieve)			
Victorian Volcanic Plain Grassland	Mortlake Common	Parks Victoria, DEECA, Traditional Owners, community groups, private landholders	The area contains Natural Temperate Grassland of the Victorian Volcanic Plains and Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains which are EPBC critically endangered communities. There is potential to coordinate deer control with planned burning and adjacent plantation owners.
Dry Forests / Heathy woodlands	Grampians National Park	Parks Victoria, DEECA, Traditional Owners, community groups, private landholders	The Grassy Dry Forest EVC is depleted in the bioregion and the heathy woodland is at risk of <i>Phytophthora cinnamomi</i> . The area is in the SMP top 20% benefit cost for deer management. There is potential to coordinate deer control with Mt Cole and Mt Buangor program.

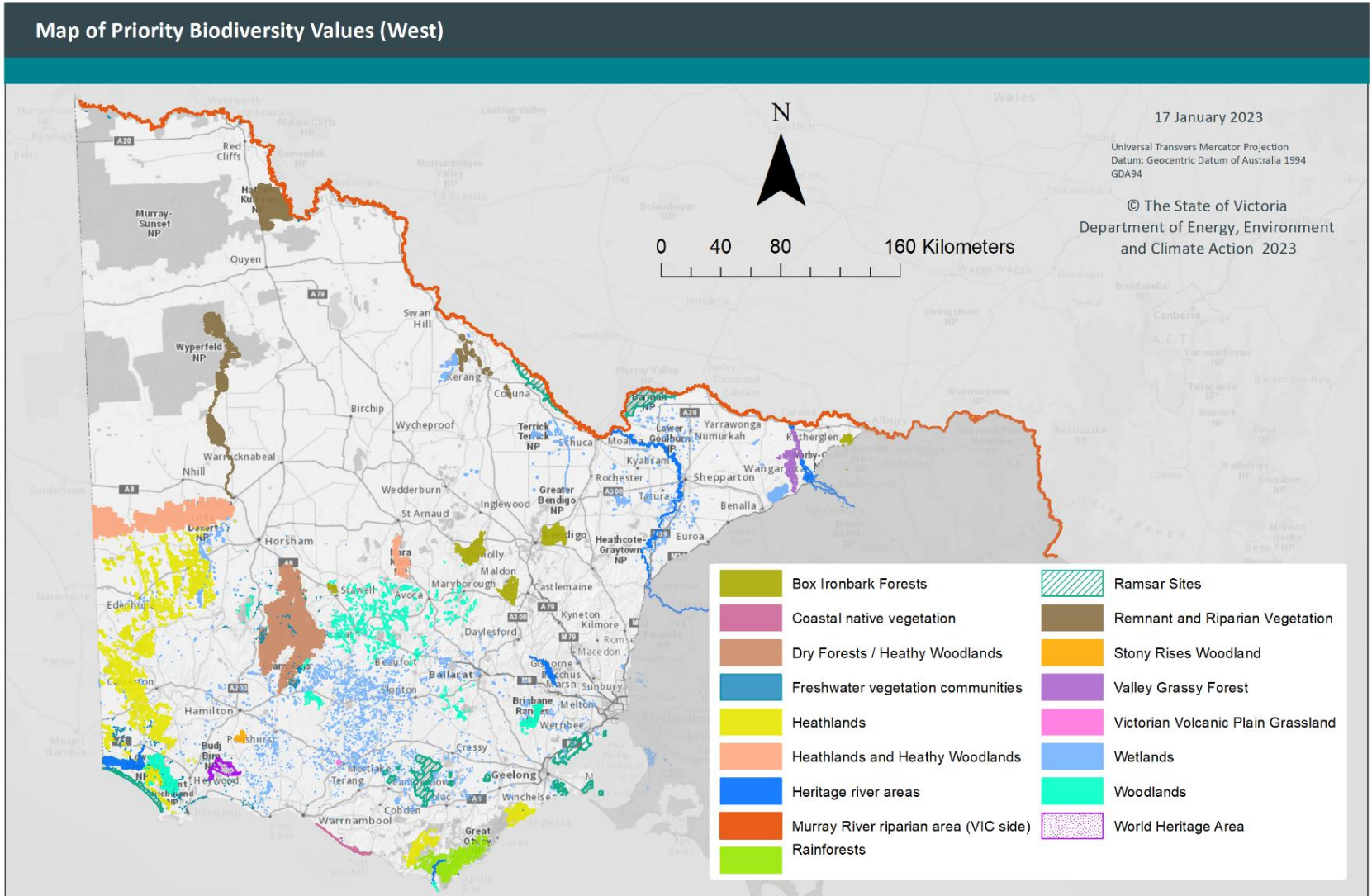
Type of value	Priority locations / EVCs	Potential partners	Explanation
Valley Grassy Forest	Warby-Ovens National Park	Parks Victoria, DEECA, Traditional Owners, community groups, private landholders	The park is on the IUCN green list and contains Valley Grassy Forest EVC, which is endangered, and Grassy Dry Forest EVC which is depleted in the bioregion. The site is in the SMP top 20% benefit cost for deer management.
World Heritage Area and National Heritage Place	Budj Bim National Park (Stony Rises Woodland) and Indigenous Protected Areas	Parks Victoria, DEECA, Traditional Owners, community groups, private landholders	Budj Bim is a World Heritage Area and National Heritage Place. It contains the Stony Rises Woodland EVC which is vulnerable in the bioregion and is in the SMP top 20% benefit cost for deer management. The existing deer population damages the landscape through grazing, trampling, and wallowing. There is the opportunity to build on the recent (2020-2022) pest animal control efforts, which included deer control.
Containment			
Heathlands and Heathy Woodlands	Heathlands and Heathy Woodlands of the Little Desert National Park	Parks Victoria, DEECA, Traditional Owners, community groups, private landholders, Trust for Nature	<p>This is a high biodiversity area, containing 670 or 24% of all Victoria's vascular plant species, more than 220 bird species, and 80 nationally threatened fauna and flora species. There is potential for deer to create more fragmentation in the landscape.</p> <p>Malleefowl (vulnerable EPBC and FFG) in Little Desert area are impacted by Fallow Deer through competition for available food and damage of habitat through trampling, grazing, and ring-barking vegetation. Deer may also trample Malleefowl mounds that are used as nesting sites.</p> <p>The area is in the SMP top 20% benefit cost for deer management.</p>
Asset protection			
Woodlands	Cape Otway woodlands on public and private land	DEECA, Parks Victoria, Traditional Owners, private landholders, community groups	<p>The woodlands contain several EPBC listed species. The Cape Otway Conservation Ecology Centre have confirmed that there are low numbers of Hog Deer, a small population of Sambar Deer, and a large population of Fallow Deer in the area which pose a risk to biodiversity. There is existing good community buy-in in the area for deer control works.</p> <p>Local elimination of Hog Deer and Sambar may be possible, whilst an asset protection approach is needed for Fallow Deer due to their more widespread distribution.</p>
	Plains Woodlands / Dry Forests in / around Brisbane Ranges National Park		The Plains Woodlands EVC is endangered and the Grassy Dry Forests EVC is depleted in the bioregion. The listed locations contain areas within the SMP top 20% benefit cost for deer management and there is potential to link to other herbivore control and works in Lederberg State Park.

Type of value	Priority locations / EVCs	Potential partners	Explanation
Woodlands (continued)	Herb-rich Woodlands in: <ul style="list-style-type: none"> Lower Glenelg National Park Cobboboonee National Park 	DEECA, Parks Victoria, Traditional Owners, private landholders, community groups	Includes several communities: <ul style="list-style-type: none"> Damp Sands Herb-rich Woodland, EVC is vulnerable in the bioregion Heathy Herb-rich Woodland, EVC is depleted in the bioregion Herb-rich Foothill Forest, EVC is vulnerable in the bioregion Includes areas in the SMP top 20% benefit cost for deer management.
	Alluvial Terraces Herb-rich Woodland between Ballarat and Grampians		Alluvial Terraces Herb-rich Woodland EVC is endangered. The EVC also contributes to a vegetated corridor for deer movement between the two areas.
Rainforests	Cool Temperate Rainforest in Great Otway National Park	Parks Victoria, DEECA, Traditional Owners	The Cool Temperate Rainforest EVC is endangered in the bioregion. Threats from deer include browsing, trampling, rubbing, and stripping (bark removal). Rubbing and stripping of Myrtle Beech increases the risk of myrtle wilt spreading through the community. The community provides habitat for Tall Astelia (<i>Astelia australiana</i>) (vulnerable EPBC, endangered FFG) which is impacted by deer through grazing / disturbance. Deer are becoming a growing issue. Fallow Deer are well established, Red Deer are growing in number, and Sambar Deer are present in low numbers. The EVC includes areas in the SMP top 20% benefit cost for deer management.
Heathlands	Heathlands and Heathy Woodlands in / around: <ul style="list-style-type: none"> Casterton Edenhope Jilpanger Nature Conservation Reserve Toosan 	DEECA, Parks Victoria, Traditional Owners, community groups, private landholders, Trust for Nature	Heathlands are particularly susceptible to <i>Phytophthora cinnamomi</i> . Movement and browsing of deer may contribute to the spread of the disease. Heathlands in this area includes areas in the SMP top 20% benefit cost for deer management. Total grazing and browsing pressure by deer and other herbivores has been identified as a key threat within the Wimmera Conservation and Action Plan.
	Coastal heathlands in/around: <ul style="list-style-type: none"> Anglesea and Great Otway National Park Heathlands in/around: <ul style="list-style-type: none"> Gellibrand (Otways) Carlisle (Otways) Kennedys Creek (Otways) 		The Coastal Heathland Scrub EVC is depleted in the bioregion. Coastal and non-coastal heathlands contain EPBC listed species and are particularly susceptible to <i>Phytophthora cinnamomi</i> . Movement and browsing of animals contribute to spread of the disease. Fallow Deer in Anglesea are causing damage including fragmentation, erosion, ringbarking, and rubbing. Fallow Deer also a safety issue on roads. Anglesea Heath is in the SMP top 20% benefit cost for deer management.

Type of value	Priority locations / EVCs	Potential partners	Explanation
Freshwater vegetation communities	Shallow Freshwater Marsh	DEECA, Parks Victoria, Traditional Owners, private landholders, community groups, CMAs	Shallow Freshwater Marsh EVC is vulnerable – endangered in the bioregions. The community is susceptible to wallowing and pugging by deer and should be considered for protection where it aligns with SMP priority mapping and other control activities in local area.
	Freshwater Meadows		The Freshwater Meadow EVC is endangered. The EVC is susceptible to wallowing and pugging by deer and should be considered for protection where it aligns with SMP priority mapping and other control activities in local area.
Wetlands	Natimuk-Douglas Wetlands	DEECA, Parks Victoria, Traditional Owners, private landholders, community groups, Trust for Nature	Includes 11 wetlands that are listed on the National Directory of Important Wetlands and utilised by up to 20 birds listed under migratory bird agreements / Bonn Convention. The wetlands are susceptible to wallowing and pugging by deer which impacts on native species habitat and should be considered for protection where it aligns with SMP priority mapping and other control activities in local area
	Seasonal Herbaceous Wetlands in close proximity to deer habitat	Parks Victoria, DEECA, Traditional Owners community groups, private landholders	This EVC is listed as critically endangered under the EPBC Act. Parks Victoria's Conservation Actions Plans have listed over grazing and over browsing by introduced herbivores (including deer) as a high risk to wetland biodiversity. Investigate deer impacts at these locations to determine need for action. Where appropriate, prevention of grazing or management of total grazing pressure at important or significant wetlands through exclusion fencing or other barriers is a priority action.
	Winton Wetlands	DEECA, Winton Wetlands Committee of Management, community groups, Traditional Owners	Large wetland restoration project. Control activity should be considered where it aligns with other investment for restoration and control activities.
Ramsar sites	Barmah Forest Ramsar site	Parks Victoria, DEECA, Traditional Owners, Goulburn Broken CMA, community groups	Ramsar wetland that meets criteria relating to species and ecological communities and fish. Riparian areas are susceptible to wallowing and pugging, which can impact on water quality. Deer management is identified as an action in the 2020-2023 Strategic Action Plan. Includes areas in the SMP top 20% benefit cost for deer management.
	Glenelg Estuary and Discovery Bay Ramsar site	Parks Victoria, DEECA, Traditional Owners, Glenelg Hopkins CMA, community groups	Ramsar wetland that meets criteria relating to species and ecological communities and fish. Riparian areas are susceptible to wallowing and pugging, which can impact on water quality. Control activity may be considered where it aligns with SMP priority mapping and other control activities in the local area.

Type of value	Priority locations / EVCs	Potential partners	Explanation
Ramsar sites (continued)	Gunbower Forest Ramsar site	Parks Victoria, DEECA, Traditional Owners, North Central CMA, community groups	Ramsar wetland that meets criteria relating to species and ecological communities and fish. The site contains the River Red Gum Grassy Woodland ecological community (FFG listed) and Grey Box Grassy Woodlands and derived native grasslands of south-eastern Australia (EPBC Endangered). Riparian areas are susceptible to wallowing and pugging, which can impact on water quality.
	Lake Albacutya Ramsar site	Parks Victoria, DEECA, Traditional Owners, Wimmera CMA, community groups	Ramsar wetland that meets criteria relating to species and ecological communities and waterbirds. Riparian areas are susceptible to wallowing and pugging by deer, which can impact on water quality.
	Port Phillip Bay (Western Shoreline) and Bellarine Peninsula Ramsar Site (includes Lake Connewarre)	Parks Victoria, DEECA, Traditional Owners, Corangamite CMA, community groups, private landholders	The revised 2018 Ramsar Site Management Plan lists deer as a priority threat to vegetation and habitats. This plan indicates deer management is of highest priority at Lake Connewarre where deer are identified as a significant threat to freshwater vegetation and salt marsh communities. Investigate deer impacts within other locations of this Ramsar site to determine need for future action. This area has been listed as asset protection, with the aim to seek long term land manager collaboration which would allow for local elimination (greater than 5 years)
	Western District Lakes Ramsar site	Parks Victoria, DEECA, Traditional Owners, Corangamite CMA, community groups	Parks Victoria's Conservation Action plan highlights Riparian areas and saltmarshes are susceptible to wallowing and pugging by deer, which can impact on water and biodiversity. Investigate deer impacts within this Ramsar site to determine need for future deer control.
Heritage River Areas	Ovens River Heritage Area	DEECA, Parks Victoria, Traditional Owners, North East CMA, private landholders, community groups	Protected under the Heritage Rivers Act 1992 for its cultural, environmental, and recreational value. Riparian areas are susceptible to wallowing and pugging, which can impact on water quality. Deer are known to use the area as a movement corridor.
	Lerderderg River Heritage Area	DEECA, Parks Victoria, Traditional Owners, Port Phillip and Western Point CMA, private landholders, community groups	
	Glenelg River Heritage Area	DEECA, Parks Victoria, Traditional Owners, Glenelg Hopkins CMA, private landholders, community groups	

Type of value	Priority locations / EVCs	Potential partners	Explanation
	Goulburn River Heritage Area	DEECA, Parks Victoria, Traditional Owners, Goulburn Broken CMA, private landholders, community groups	
	Aire River Heritage Area	DEECA, Parks Victoria, Traditional Owners, Corangamite CMA, private landholders, community groups	

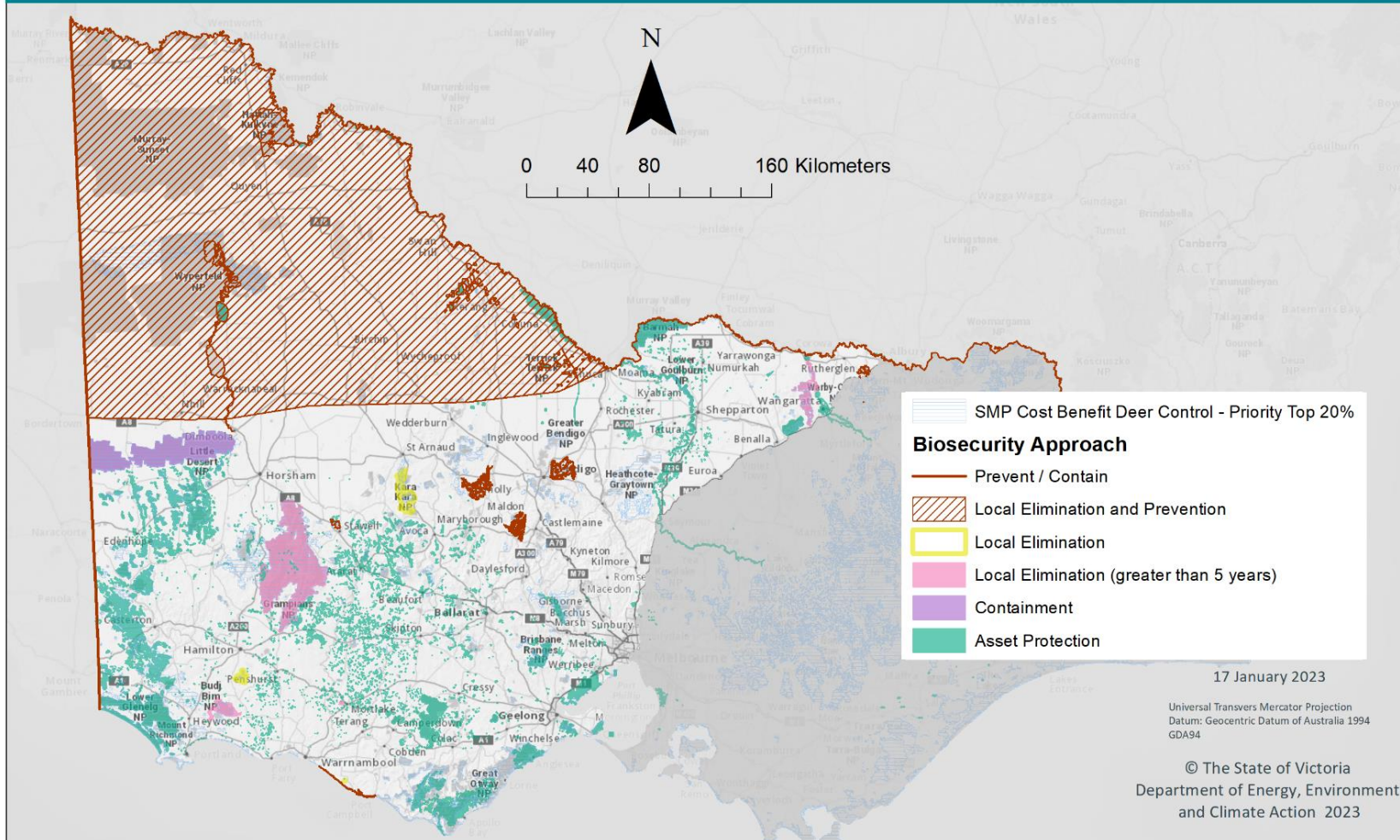


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Figure 16. Map of priority values. This map is indicative as not all values are visible due to its scale. Table 4-1 is the primary source of information for all values.

Map of Priority Biodiversity Values (West) - Biosecurity Approach



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Figure 17. Map of priority values for protection based on biosecurity principles, with Strategic Management Prospects (SMP) of deer control cost-benefit - Top 20% (rank 81-100)

CASE STUDY 1: BUDJ BIM CULTURAL LANDSCAPE

Known populations of Fallow and Red Deer are impacting biodiversity values in the south-west of Victoria, particularly within the Budj Bim Cultural Landscape.

The Budj Bim Cultural Landscape is located within Gunditjmara Country in south-western Victoria, and comprises Indigenous Protected Areas, Lake Condah Mission and Budj Bim National Park (formerly Mt Eccles National Park) which is co-managed by Parks Victoria and Gunditj Mirring Traditional Owners Aboriginal Corporation (GMTOAC). It is surrounded by plantations and private agricultural land.

The presence of deer in the landscape threatens the internationally significant cultural values and World Heritage sites.

The cultural landscape and surrounding public and private land in the area support threatened Ecological Vegetation Classes (EVCs) including herb-rich woodlands and forests and shallow freshwater marshes, which are considered to be depleted, vulnerable, or endangered within the bioregion.

The landscape is still recovering from a large wildfire. Biodiversity and habitat richness is at risk by deer wallowing, browsing, rubbing, trampling of regenerating vegetation.

Damage to plantations by rubbing and stripping tree stems and browsing of young trees, reduces the number and amount of stems suitable for timber production. This has economic impacts for plantation companies, and ultimately consumers.

Deer also impact on grazing land by reducing the feed for stock, which can reduce the carrying capacity. This is particularly an issue when grazing land is adjacent to forested areas.

Collaborative Effort

Deer Management is most successful with collaboration between land managers and the wider community. Ground and aerial deer control and monitoring across the Budj Bim Cultural Landscape has been a collaborative effort between Gunditj Mirring, Parks Victoria, DEECA and local contractors.

Close to 2,000 deer have been removed from the cultural landscape over the last 2 years.

Future Opportunities

Successes from shooting operations could be enhanced by extending works into surrounding plantations and agricultural land with the potential to use commercial harvesters who could assist with the removal of deer and harvesting of carcasses.



Figure 18. Image of deer from camera monitoring

CASE STUDY 2: ALPINE DEER CONTROL

The Alpine National Park has outstanding conservation significance, providing critical habitat for native species including several threatened or endangered species and communities, including unique alpine/sub-alpine habitats. Characterised by sphagnum moss, alpine peatlands occur in high elevation wetlands, streams and drainage lines at the headwaters of some of Victoria's most significant rivers. Alpine peatlands (Alpine Sphagnum Bogs and Associated Fens ecological community) are endangered, listed in state and federal legislation, and home to many rare and threatened species found nowhere else.

Impacts of Deer: Alpine peatlands are sensitive, quickly damaged and slow to recover. Sambar deer are a key threat, damaging peatlands through trampling, pugging and wallowing. Over the last decade deer have pushed higher into the mountains in increasing numbers.

Damage to endangered alpine peatlands caused by deer wallowing, pugging and trail creation is often observed in the Alpine National Park, raising significant environmental concerns. Assessments, undertaken between 2004 and 2009, of 131 alpine peatlands in the Bogong Unit and 79 in the Wonnangatta – Moroka Unit of the ANP found 23% and 47% respectively showed evidence of deer activity, with 25% of the peatlands assessed in the Wonnangatta – Moroka Unit damaged to some extent, by deer wallows. (Tolsma 2019)



Figure 19. Alpine peatlands and Sambar deer wallow

Monitoring and Control: In response to escalating deer impacts, the Alpine National Park Deer Control Trial was established in 2015. The trial initiated a deer control program that aimed to protect alpine peatlands and apply a comprehensive monitoring program, with a robust before/after/control/impact (BACI) design, to assess whether ground shooting could reduce deer activity in peatlands, mitigate deer impacts, improve peatland condition and determine which control approaches are the most efficient and effective.

The trial showed significant results, with control works decreasing deer activity by half in the shooting area, compared to a 50% increase in the non-shooting area. Corresponding improvement of peatland impact measures was also recorded in shooting areas, demonstrating with high confidence, that deer control is a worthwhile and effective action for protecting and improving the condition of alpine peatlands.

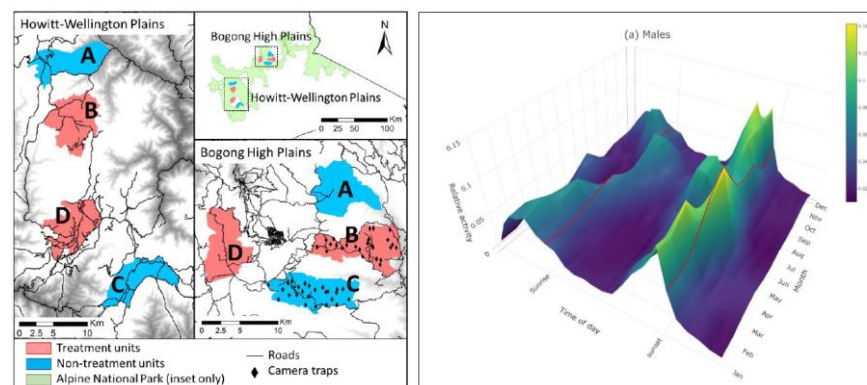


Figure 20. Map of trial areas and deer movements

The Alpine National Park deer control trial provides valuable evidence to guide the application of efficient and effective deer control to protect endangered alpine peatlands. The trial demonstrates, with high confidence that deer control is a worthwhile and effective action for protecting and improving the condition of alpine peatlands.

To maintain the reduced deer activity and impacts, and corresponding improvement in the vegetation, strategic deer control should continue in targeted areas using the most efficient and effective control approaches.

4.2 GOAL 2: THE IMPACTS OF DEER ON ECONOMIC VALUES, SOCIAL VALUES, AND PUBLIC SAFETY ARE REDUCED

PRINCIPLES FOR ACTION

Western Victoria is home to a diverse range of economic values. This includes primary industries such as horticulture, intensive animal operations, grazing, broadacre cropping, viticulture, and forestry. These activities can be affected by deer in many and varied ways.

For the purposes of this Plan, social values refer to the social benefits that some parts of a region generate for the community. They will include scenic areas, natural features, recreational areas and facilities, and much more. They are found across rural and regional communities, and deer can affect them in many ways and to varying extents. Specific examples of these values and the impacts of deer on them were discussed with the partnership group.

One specific area of concern raised was the road safety risk that deer pose. There is currently insufficient data available to identify all those locations where deer pose a high risk to road users. One action identified within Goal 3 of this Plan is to improve understanding of the risk that deer pose to road users.

Townships like Halls Gap and those along the Surf Coast are increasingly reporting deer collisions and damage to fences, gardens, and local amenity. These and other towns that adjoin large, forested areas require a landscape-scale approach to managing deer numbers, with a focus on asset protection around forest interfaces.

As these economic and social values (and the related deer impacts) are widespread throughout the region, it is not appropriate to nominate deer control in one area, industry or agricultural value as being more important than another. Instead, a principles-based approach to reducing the impact of deer on economic and social values is proposed.

These principles are that control efforts should prioritise:

- Interface areas within 2km of known deer habitat or high value biodiversity assets identified by the Partnership Group where deer are known to be having the greatest impact on business, private enterprise or communities.
- Peri-urban areas and communities in and adjoining known deer habitat
- Areas where activities to mitigate the impacts of deer are already being undertaken by community groups or businesses
- Areas where there is collective community desire to take action
- Areas where the risk that deer pose to drinking water supplies can be (practically) reduced.

ACTIONS

From these principles, there are three actions intended to achieve Goal 2:

- 2.1 Encourage communities, private enterprise, and agricultural industries to undertake deer control or management where there are impacts from deer on natural resources, agricultural enterprises, community assets and community safety.
- 2.2 Encourage opportunities for collaboration between professional, volunteer and recreational hunters in planning collective local community action to protect economic and social values from the impacts of deer.
- 2.3 Prioritise deer control within a 2-3km buffer of town water supply off-take points managed by water authorities, and within 2km of known deer habitat where impacts from deer are greatest.

The implementation plan below indicates the lead and potential partners for each action.

[Case study 3](#) provides a hypothetical example of the type of approach that is consistent with the objectives of this goal. It sets out a collective approach to deer management in the south-west of the state, which includes values and priority locations nominated by the partnership group.

[Case study 4](#) demonstrates the impacts of increasing deer numbers on grapes and cropping, and localised actions taken by affected farmers and vignerons.

Why aren't there specific priority locations listed for economic and social values and public safety?

- Deer can affect primary production business and communities in many ways and to varying extents
- Data on deer impacts on primary producers and road safety is incomplete and patchy across the region.

This Plan is intended to support landholders, communities, or groups who want to initiate deer control in their area.

Prioritising one area or agricultural activity ahead of another is difficult to justify given the complexity of data available and may discourage land managers and communities from taking action to control impacts of deer in their community.

IMPLEMENTATION PLAN

The actions listed in this implementation plan are intended to show that this Plan supports collective community and local action to protect economic and social values from the impacts of deer. Actions led by community groups and water authorities should be encouraged where they align with the principles for action.

Table 3-2: Goal 2 implementation plan

No.	Action	Purpose	Potential Partners
2.1	Encourage communities, private enterprise, and agricultural industries to undertake deer control or management where there are impacts from deer on natural resources, agricultural enterprises, community assets and or community safety.	Asset protection	e.g., Landcare and Friends of groups, public land manager, Sporting Shooters Association Australia, Australian Deer Association, Game Management Authority
2.2	Encourage and explore opportunities to collaborate with professional, volunteer and recreational hunters in planning collective community and local action to protect economic and social values from the impacts of deer.	Asset protection	e.g., Friends of, Landcare, public land manager, SSAA, ADA.
2.3	Prioritise deer control within a 2-3km buffer of town water supply off-take points managed by water authorities, and within 2km of known deer habitat, where impacts from deer are greatest.	Asset protection	e.g., water authority, public land manager

CASE STUDY 3: SUPPORTING COLLECTIVE ACTION IN THE SOUTHWEST OF VICTORIA

This is a hypothetical example of collective action for the management of deer

In the south-western corner of Victoria, three national parks (Cobboboonee, Lower Glenelg, Mount Richmond) and other public land, including Johnstones Creek Flora Reserve and Discovery Bay Coastal Park, are all in close proximity. These areas are connected by private grazing and cropping land, softwood and hardwood plantations, and state forests. Fallow deer have been observed in these areas which leads to detrimental impacts on the vegetation communities through browsing and trampling damage to HVPs softwood plantations through rubbing and stripping bark.

The national parks and public land in the area all support threatened Ecological Vegetation Classes (EVCs) including herb-rich woodlands and forests and shallow freshwater marshes, which are considered to be depleted, vulnerable, or endangered within the bioregion.

Extensive damage to HVP's softwood plantations (rubbing and stripping pine tree stems and browsing of young trees) reduces the number and amount of stems suitable for timber production, which has economic impacts for HPV, and ultimately consumers.

Deer also impact on grazing land by reducing the feed for stock, which can reduce the carrying capacity. This is particularly an issue when grazing land is adjacent to forested areas.

This is an example where collective action between public land managers, HVP, private land managers, and community groups should be supported. Such an approach can achieve cross tenure outcomes and reduce the impact of deer on biodiversity, economic, and social values. This might include the use of professional aerial deer control in Cobboboonee NP, professional ground deer control in Discovery Bay CP, recreational hunting in the Forest Park, use of SSAA Farmer Assist on grazing land, and fencing of key cropping sites and around juvenile softwood plantations.

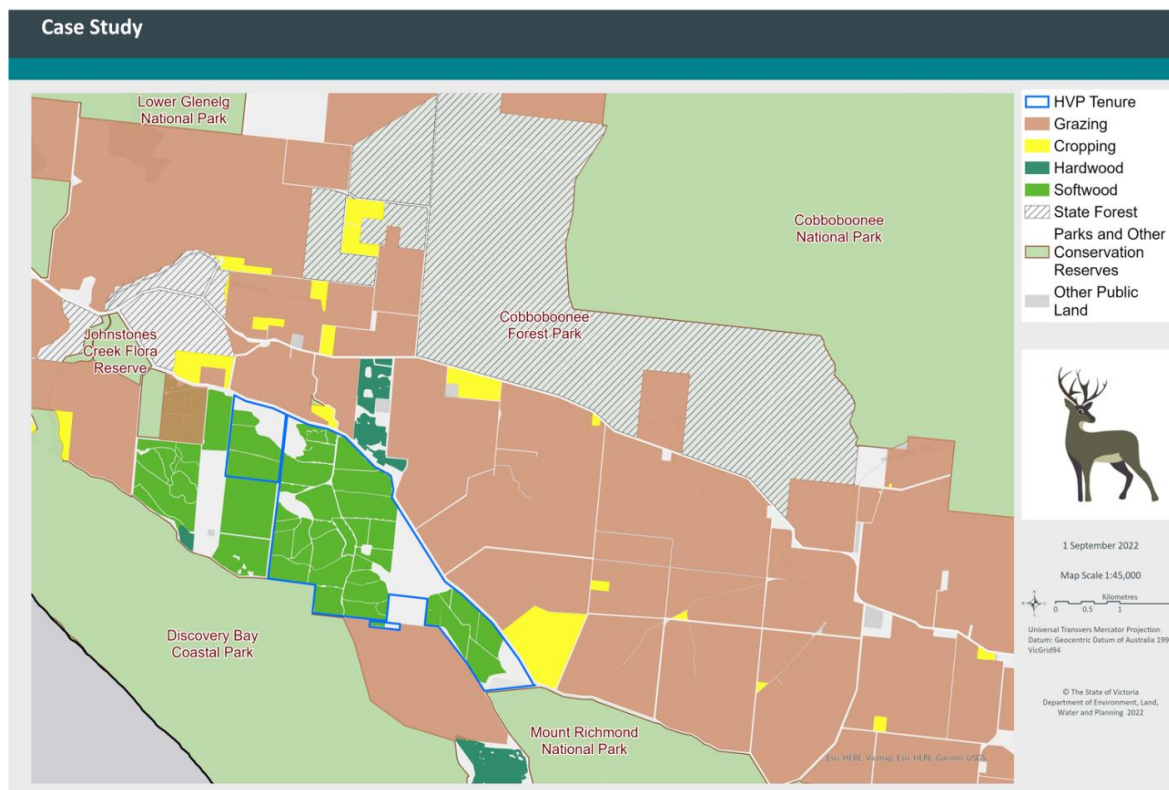


Figure 21. Map of the south-western corner of Victoria showing multiple land tenures

CASE STUDY 4: PRIVATE LANDHOLDERS TACKLE DEER ON FARMS AND VINEYARDS

In central Western Victoria, the Grampians National Park and Langi Ghiran State Park are surrounded by private vineyards, grazing and cropping land. The Grampians Estate, located in Mafeking on the east of the Grampians National Park, and Mount Langi Ghiran Vineyard, located at the foot of Mount Langi Ghiran, have both observed large numbers of deer that browse on their crops leading to costly impacts on their businesses.

Increasing Deer Numbers and Impacts: Property owners of the Grampians Estate Winery have observed deer numbers steadily increasing, initially seeing deer 1-2 times per year in the 1980s to more recently witnessing mobs of up to 60 red deer. Sightings of Fallow deer have started to occur in the last few years too.

Impacts on their sheep farming have been severe, with browsing by deer impacting the growth of the summer crops used to feed lambs. One deer can eat approximately 3 times what a sheep would need to consume.

Mount Langi Ghiran Vineyards have two properties, both with more than 30 hectares of vines. They have been experiencing extreme pressure from deer over the past 10 years. In 2016 the business lost 100% of their crop from two blocks of Shiraz on the winery property as well as experiencing fruit loss generally across both properties.

Shooting: For the past 10 years the property located in Mafeking has welcomed recreational shooters to hunt deer on their property resulting in reduced deer pressure on the crops. The relationship between the property owner and recreational shooters is extremely positive and respectful. In the past year recreational shooters have been encouraged to record numbers of deer shot and to hunt more than one deer at a time. Between September 2021 and 2022, 20 different shooters shot 63 deer on the property, and between March and April 2022 there was a shooter on the property every single day. The biggest mob of deer they see now is 45, indicating that numbers have reduced but remain high.

Successes from shooting operations might be enhanced by extending works into surrounding properties or using commercial harvesters who could remove larger numbers of deer.

Fencing: Both wineries have installed fencing around the properties/vineyards to protect their grape crop. A 1.8m high perimeter fence was installed around one of the winery properties. This was seen to be very successful although long-term testing in different climatic conditions is needed to properly test the full effectiveness of the fence. An electric fence was also installed around a vineyard perimeter which is partially effective in low deer pressure years but had zero impact in high pressure years with as many as 30+ deer grazing through the vines in the lead up to the harvest causing extensive fruit loss. Plans are in place to install the effective 1.8m high fencing around this property.



Figure 22. Tall fence to protect grapevines from deer - Tom Guthrie

4.3 GOAL 3: AWARENESS, UNDERSTANDING AND CAPACITY TO MANAGE DEER IS INCREASED

PRINCIPLES FOR ACTION

Understanding of deer, their impacts and options for deer management in Victoria is variable. If communities become accustomed to deer, or perhaps even consider them a part of the local wildlife, this can compromise efforts to initiate deer control programs (Ford-Thompson 2015).

Undertaking research and monitoring, and sharing deer related data will enhance community and land manager knowledge of deer and their impacts in western Victoria, and better direct future control efforts.

Greater community awareness can generate support for deer management, and more involvement in projects, as well as monitoring, planning, engagement, education, and coordination of local deer control.

The VDCS identifies knowledge gaps offering potential research and training opportunities in regional areas, whilst acknowledging that citizen science may improve data on deer distribution, densities and deer vehicle collisions through improved reporting of sightings and incidents.

Recognition of a need for better knowledge sharing and engagement has led to the establishment of new groups, including the [Victorian Deer Control Community Network \(VDCCN\)](#). The Network works with community, Landcare, DEECA, and the [National Feral Deer Management Coordinator](#) to share information to empower community to manage deer impacts.

Increasing the awareness and understanding of deer management is also important to public land managers, with DEECA offering training for on-ground staff, whilst also working with Parks Victoria, the VDCCN, and others to plan deer forums for community and land managers to enable greater collaboration and sharing of knowledge, including with Traditional Owners.

Drawing on the challenges and opportunities noted here, the following principles have been defined to underpin the actions for Goal 3:

- To complement control works close to urban areas, awareness-raising and communications campaigns can educate community on how control will help minimise deer interactions with people and vehicles, thus reducing risks to public safety.
- All deer management actions should support standardised data collection and sharing.
- Community education about the damage caused by deer is a critical part of building awareness of the need to control deer and social acceptance of their control.
- Whenever possible, community-led action should be encouraged.

ACTIONS

From these principles, there are three actions intended to achieve Goal 3.

- 3.1 Improve collation and sharing of data through use of existing online platform that enable people to record and share their deer sightings, control, or collision data, e.g. VBA, VBA Go, DeerScan, iNaturalist.
- 3.2 Facilitate sharing of deer related monitoring and research undertaken by Victorian Government agencies, universities and other entities through annual forums and data share arrangements.
- 3.3 Increase community understanding of deer impacts and control options, particularly in communities located in or near deer habitat and more broadly.

The implementation plan indicates the lead and potential partners for each action.

[Case study 5](#) is a local example of building capacity of local hunters and landholders through training and monitoring.

[Case study 6](#) is an example of a collective approach to deer management utilising knowledge from other groups and agencies working in the area.

[Case study 7](#) is an example of community working with volunteer hunters as part of their local control efforts.

HOW CAN AWARENESS AND CAPACITY BE INCREASED?

- Training in deer identification, vegetation monitoring, and control and management techniques, including use of new tools to build capacity and effectiveness in mitigating deer impacts.
- Forums, field days, webinars, and fact sheets for landholders, industry, and government agencies.
- Use effective media and other communications to inform and educate community.
- Learn from interstate and international knowledge and experiences
- Utilise existing resources available through Landcare, VDCCN, National Feral Deer Plan, GMA, SSAA, ADA and DEECA.
- Consider modelling community led deer management action and education on best practice examples such as the [Victorian Rabbit Action Network](#), or the [National Wild Dog Action Plan](#) with training, mentoring, best-practice workshops, and field days.

IMPLEMENTATION PLAN

Actions listed in this implementation plan are designed to support collective action to increase awareness, understanding, and capacity to manage deer. Actions led by community groups should be supported where they align with the principles for action.

Table 4-3: Implementation plan for Goal 3

No.	Action	Potential Partners	Purpose
3.1	Improve collation and sharing of data through use of existing online platforms that enable people to record and share their deer sightings, control, or collision data, e.g. VBA, DeerScan, iNaturalist	DEECA, Parks Victoria (PV), Regional Roads Victoria, recreational hunters, community groups, CMAs, SSAA, ADA, GMA, HVP	To improve decision making for deer management programs
3.2	Facilitate sharing of deer related monitoring and research undertaken by Victorian Government agencies, universities, and other entities through an annual forum.	DEECA, Arthur Rylah Institute, PV, Regional Roads Victoria, universities, SSAA, ADA, GMA, HVP	To improve decision making for deer management programs
3.3	Increase community understanding of deer impacts and control options for the whole Victorian community, particularly in communities located in or near deer habitat.	DEECA, Community groups, PV, CMAs, SSAA, ADA, HVP, GMA.	To empower communities to understand deer impact and initiate and support their own deer management programs with support from public land managers

CASE STUDY 5: COLLABORATING WITH HARVESTERS, COMMUNITY TRAINING AND MONITORING IN THE OTWAYS

Understanding that deer control in the Otways is likely to be ongoing, the Conservation Ecology Centre (CEC) team are seeking to ensure that local activities are sustainable, from practical, economic and environmental perspectives. As part of the *Wild Otways Initiative: Feral Pig & Deer Eradication* sub project, the CEC, with support from the Corangamite CMA and funding from the Australian Government, is helping to build knowledge around the distribution of deer species in the Otways, building capacity, and helping to protect areas where they pose a significant threat to native species.

Working with Community: As part of the Wild Otways project the CEC have hosted a series of community workshops, in partnership with local Landcare Networks, training community members in monitoring methods; coordinated direct community-led pest control efforts; developed a network of accredited, registered shooters; and trained land management agency staff in effective feral pig and deer control techniques. The work will culminate in the development best practice guidelines for feral pig and deer control in the Otways.

The CEC team have worked "one on one" with multiple landholders to demonstrate monitoring and control techniques on their properties. The focus has mainly been on feral pigs, but where the landholders are also experiencing issues with deer, they suggest they contact local field harvesters, and use similar monitoring techniques. The CEC encourage landholders to use the Feral Scan reporting platform to report any sightings, damage as well as control successes.



Figure 23. Fallow Deer caught on monitoring cameras in the Otways - CEC

Building Capacity for Control or Harvesting: The CEC has facilitated engagement between Wild Game Field Harvesters (WGFH) and landholders in the Southern Otways to increase deer control on private land. The program aims to support harvesters to turn local venison into a commercially viable product as a way of facilitating the sustainable ongoing control of deer in the Otways.

The CEC work with local hunters to encourage uptake of commercial harvesting qualifications to improve deer control on private properties. One local hunter, engaged in July 2022, has gone on to trap 20 feral pigs, and has gone on to complete his WGFH course. Another two harvesters are also now set up, ready to start harvesting deer in 2023, with the CEC sharing their details with local Landcare Networks, to pass onto their members and other landholders. The CEC plan on linking harvesters with multiple landholders in the same area to help improve the effectiveness of their control across the landscape.

Partnerships between commercial harvesters and local butchers (such as The Meat Crew and Feral Hunting Services) are the type of activity CEC believe will facilitate the long-term reduction of feral deer numbers in the Otways, while also creating jobs, as well as a sustainable local food source.



Figure 24. Community field day on monitoring and deer harvesting - CEC

CASE STUDY 6: MITTA VALLEY LANDCARE NETWORK - COMMUNITIES AND LAND MANAGERS IN ACTION

Issue: Growing concern about the impacts from deer on farming activities, left the community seeking learnings from neighbours in the North-East.

Action: In 2015, with East Gippsland Catchment Management Authority support, the local Mitta Valley Landcare Group (MVLG) began a project around deer management. The project was driven by continuing landholder and community concerns. The group wanted to understand the impacts deer were having to local commercial and non-commercial values, as well as impacts on the environment and management of illegal hunting.

Over the next four years MVLG held four deer forums, engaged with State Government, GMA, hunting organizations and Victoria Police and delivered to the community a range of relevant, informed gatherings to help share experiences and build knowledge on the deer issues in their area.

Collaboration: The group also joined the Hume Region Deer Forum, meeting twice yearly in Wangaratta. They have informed key strategies and supported the removal of barriers to commercial harvesting, one of the tools used. The [Mitta Valley Landcare Group](#) have worked closely with the [Upper Murray Landcare Network](#). Both groups have a range of resources and experience, which you can read more about on their webpages.

Outcome: Adaptive management involving recreational or commercial controllers, fencing, understanding deer behaviour in your area, exchanging of deer butchering and cooking ideas.



Figure 25. Ben Teek from Tallangatta South next to a deer damaged fence - Parks Victoria

CASE STUDY 7: SOUTH GIPPSLAND DEER ACTION GROUP

In 2021 a group of landholders in the Cape Liptrap and Mt Best areas of South Gippsland came together out of a shared concern about the damage that deer were doing to local bush, and to their own properties. Now known as the South Gippsland Deer Action Group, they are raising awareness of the impacts of deer and facilitating control. There are now over 50 properties involved, covering approximately 8,700 hectares.

The group is building relationships across the community and sharing experiences and information on deer control. An early focus was to contact every landholder in the area – farmers, residents and absentee landowners – to talk to them about deer, the damage they are doing and the options for controlling them. Through this early engagement and conversations, community members became more comfortable with the need to shoot deer.

To date, the group has provided deer information to landholders and local media, building local knowledge and understanding of deer. The group acts as a communications network, keeping the community informed of any actions taking place (e.g. shooting) and coordinating these efforts. They have also facilitated a coordinated deer control program across multiple properties in the area.

This approach is an example of a community having the initiative to self-organise, gather information and coordinate deer control action amongst themselves. From this foundation, the group has been successful in gaining funding to progress their work. Notably, this funding is used to employ a facilitator to bring people together, keep everyone informed and to maintain community interest and momentum. Funds are not used to engage shooters for control which is conducted by both local landholders and volunteer hunters (using a landholder agreement to engage shooters).

The group is also engaging with Parks Victoria and other public land managers in the area with the aim of seeking further opportunities to further coordinate action across tenure.



Figure 26. South Gippsland landholders installing fencing

5 Monitoring, evaluation, and reporting

A monitoring, evaluation, and reporting framework (MER framework) for the VDCS was under development at the time the West Victoria Deer Control Plan was written. It is anticipated that the VDCS MER framework will outline monitoring indicators for each of the goals.

The table outlined below focusses on the monitoring indicators for each of the actions described in this Plan, how frequent data should be collected and who is responsible.

Table 3-4: Monitoring indicators for each action

No.	Action	Indicators of impact / achievement	Timing	Partners
Goal 1: The impacts of deer on environmental values and cultural values are reduced				
1.1	Undertake control works at priority locations	<ul style="list-style-type: none"> Reduction in area impacted by deer Reduction of deer population estimates Number of deer removed in priority and other areas Number of hectares searched and treated by different methods in priority and other areas 	Annually	PV, DEECA, CMAs, GMA
1.2	Monitor deer and their impacts at priority locations.	<ul style="list-style-type: none"> Hectares assessed for deer impacts Measurable improvements to level of observed deer impact in key vegetation communities Number and location of new sightings of deer reported where deer have not previously been observed 	Annually	PV, DEECA
1.3	Stakeholder / community engagement and education at priority locations.	<ul style="list-style-type: none"> Number of projects planned Number of communities and organisations engaged in planning Area and assets covered by planned projects Level of progression of projects e.g., planning underway, planning complete, ready to commence on ground works, works completed etc. 	Annually	PV, DEECA
1.4	Partner with Traditional Owners to enable self-determination for the management of Country and protection of values from impacts by deer.	<ul style="list-style-type: none"> Number and location of Traditional Owner groups engaged with or participating in deer management planning and delivery processes Cultural values are identified for inclusion in the Plan through engagement processes 	Annually	PV, DEECA, project delivery leads, Traditional Owners

No.	Action	Indicators of impact / achievement	Timing	Partners
Goal 2: The impacts of deer on economic values, social values and public safety are reduced				
2.1	Encourage communities, private enterprise, and agricultural industries to undertake deer control or management where there are impacts from deer on natural resources, agricultural enterprises, community assets and or community safety.	<ul style="list-style-type: none"> Number of, type and extent of community deer management projects supported Where control works are undertaken: <ul style="list-style-type: none"> Area of control Area of search effort Number of deer removed 	Annually	DEECA
2.2	Encourage and explore opportunities to collaborate with professional, volunteer and recreational hunters in planning collective community and local action to protect economic and social values from the impacts of deer.	<ul style="list-style-type: none"> Number of projects where volunteer and recreational hunters supported control efforts Where control works are undertaken: <ul style="list-style-type: none"> Area of control Area of search effort Number of deer removed 	Annually	DEECA, GMA, TFN, HVP
2.3	Prioritise deer control within a 2-3km buffer of town water supply off-take points managed by water corporations, and within 2km of known deer habitat, where impacts from deer are greatest.	<ul style="list-style-type: none"> Where control works are undertaken: <ul style="list-style-type: none"> Area of control Area of search effort Number of deer removed 	Per project	Water corporations, PV, DEECA
Goal 3: Awareness, understanding and capacity to manage deer is increased				
3.1	Improve collation and sharing of data through use of existing online platforms that enable people to record and share their deer sightings, control or collision data, e.g. VBA, VBA Go, DeerScan, iNaturalist	<ul style="list-style-type: none"> Level of use of on-line platform Number of deer sightings and collisions reported 	Annually	DEECA, PV
3.2	Facilitate sharing of deer related monitoring and research undertaken by Victorian Government agencies, universities, and other entities through an annual forum.	<ul style="list-style-type: none"> Research forums convened to share knowledge (number and participation levels) Research information distributed to stakeholders (newsletters, seminars, reports etc.) 	Annually	DEECA
3.3	Increase community understanding of deer impacts and control options for the whole Victorian community, particularly in communities located in or near deer habitat.	<ul style="list-style-type: none"> Change in level of awareness and knowledge of deer among community members over time 	Annual or biennial	Community group, DEECA, PV

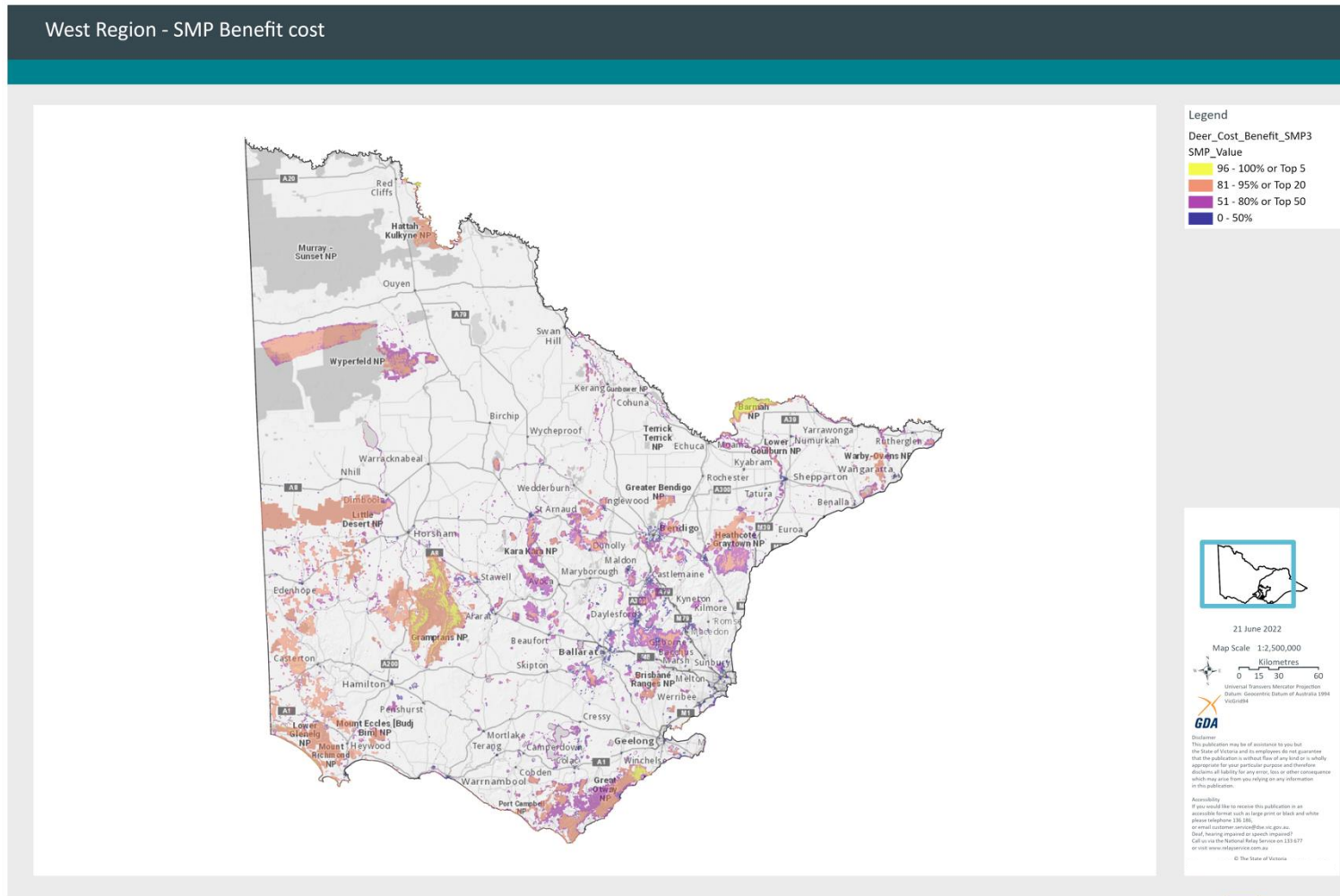
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Abbreviations

ADA	Australian Deer Association
ARI	Arthur Rylah Institute
EAD	Emergency Animal Diseases
CEC	Conservation Ecology Centre
CMA	Catchment Management Authority
DEECA	Department of Energy, Environment and Climate Action
DELWP	Department of Environment Land Water and Planning (now DEECA)
DJPR	Department of Jobs, Precincts and Regions
EVC	Ecological Vegetation Classes
GIS	Geographic Information Systems
HVP	Hancock Victorian Plantations
IUCN	International Union for Conservation of Nature
KPI	Key Performance Indicator
LGA	Local government area
MER	Monitoring Evaluating and Reporting
MW	Melbourne Water
PV	Parks Victoria
SMP	Strategic Management Prospects
TO	Traditional Owner
VBA	Victorian Biodiversity Atlas
VDCS	Victorian Deer Control Strategy
WGFH	Wild Game Field Harvesters

Appendix 1: SMP deer control cost benefit map



www.deca.vic.gov.au

Figure 27. Strategic Management Prospects (V3) Deer Control Cost-Benefit

