



East 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.



East Victoria Deer Control Plan 2023–28

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1 Introduction

1.1 PURPOSE OF THIS PLAN

The East 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 West 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 eastern 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 eastern Victoria (using the Hume Freeway as the western 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.

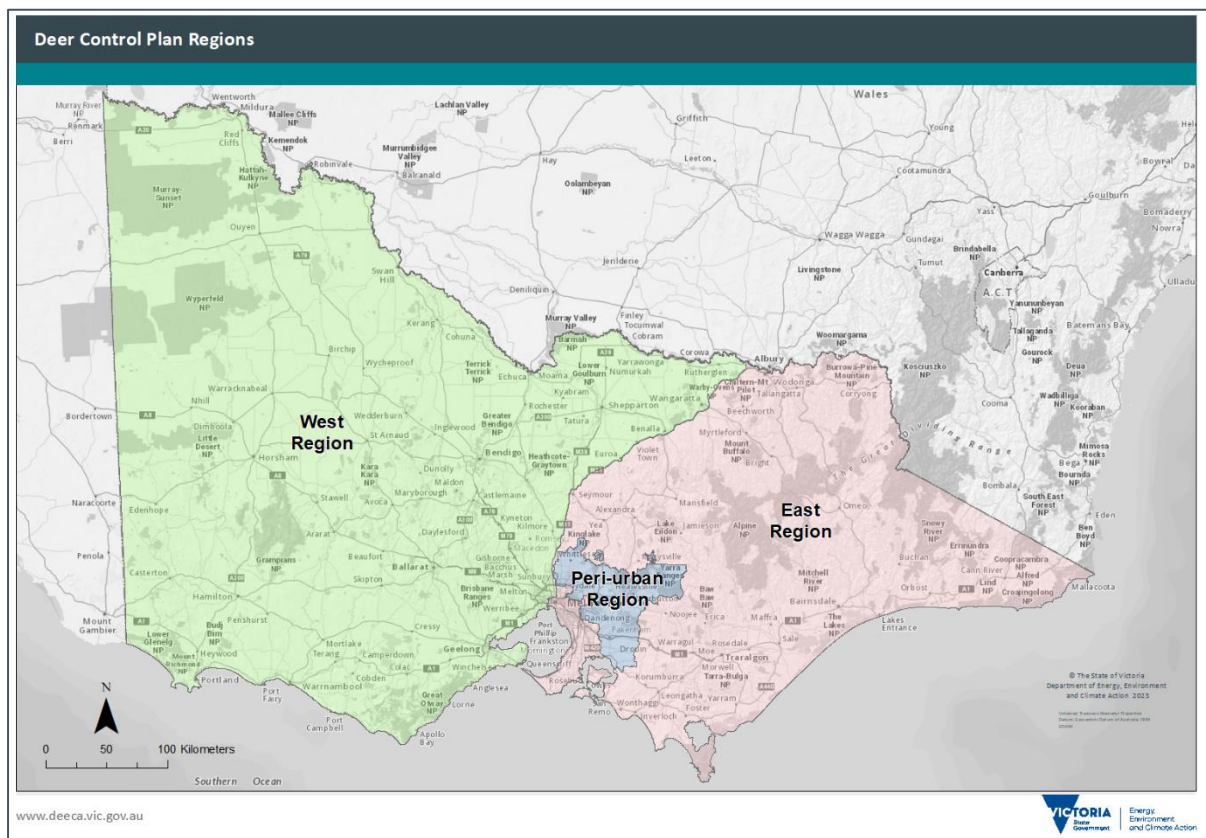


Figure 1. Deer control plan regions

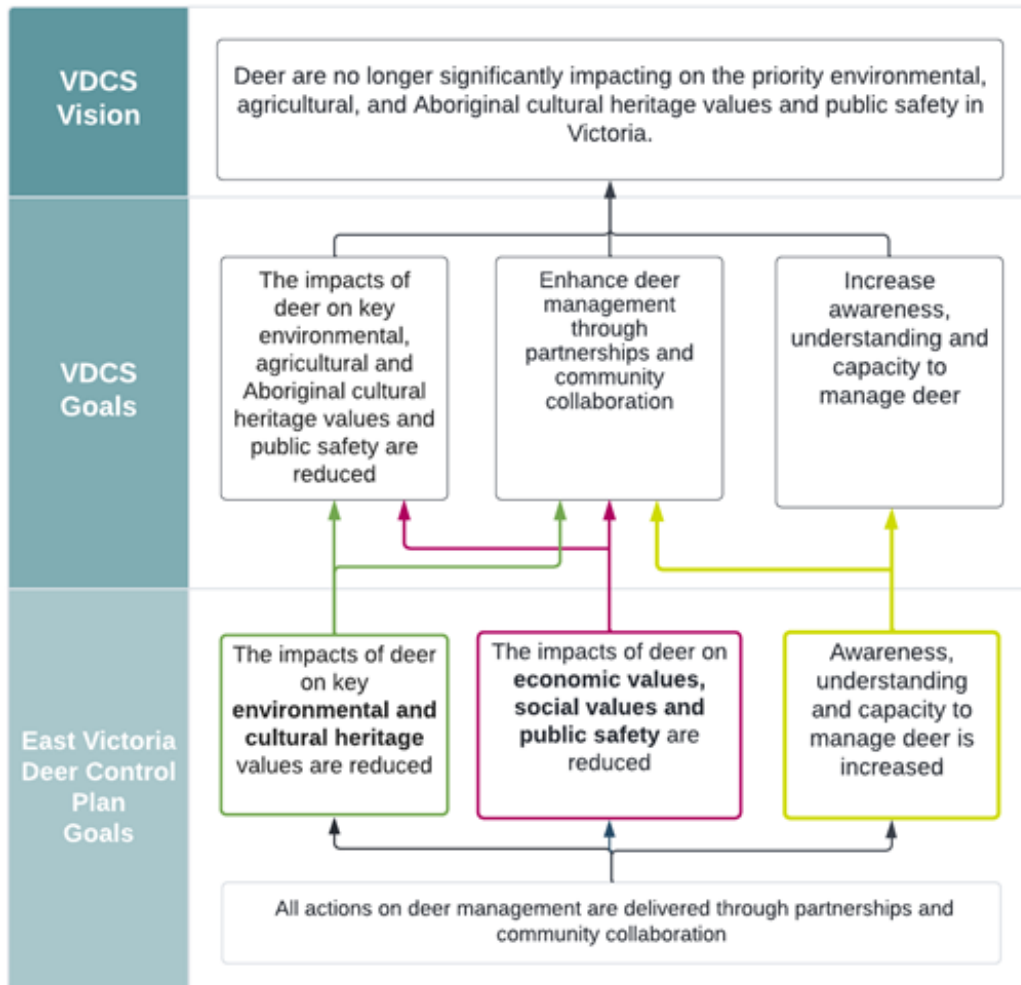


Figure 2. Alignment of East Victoria Deer Control Plan goals with those of the Victorian Deer Control Strategy

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 action throughout Victoria. The partnership groups, comprised of local stakeholders involved and interested in managing deer impacts, will also play a key role in 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 VDCS including development of the Regional Plans.

1.5 APPROACH TO DEVELOPING THE PLAN

The East Victoria Deer Control Plan was prepared in consultation with the Eastern Regional Partnership Group, which comprised Gippsland and Hume sub-groups. The sub-groups provided regionally specific context for the development of the Plan to account for the complexity and diversity of issues within these vast landscapes, including different deer species, distribution and impacts across the planning area.

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 to their completion.

The four partnership group 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.

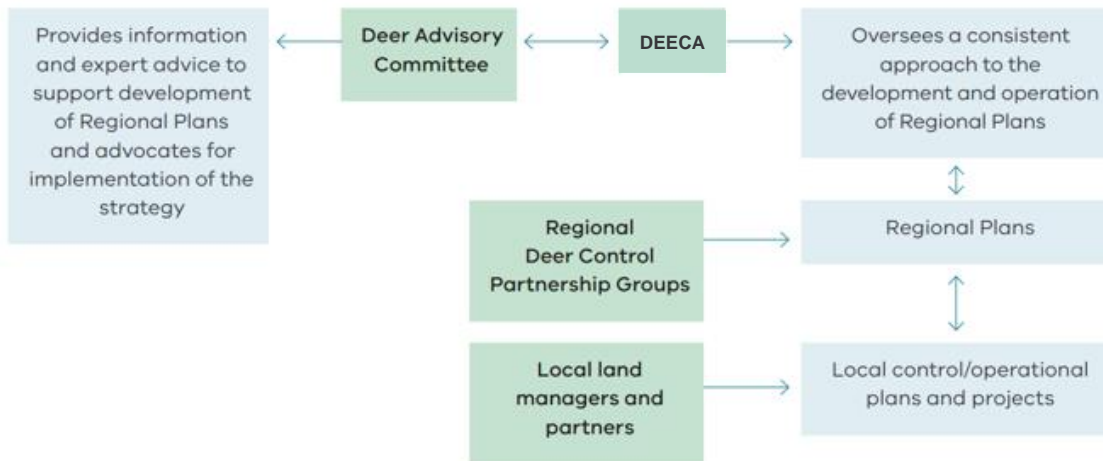


Figure 3. Deer Control Framework under the Victorian Deer Control Strategy

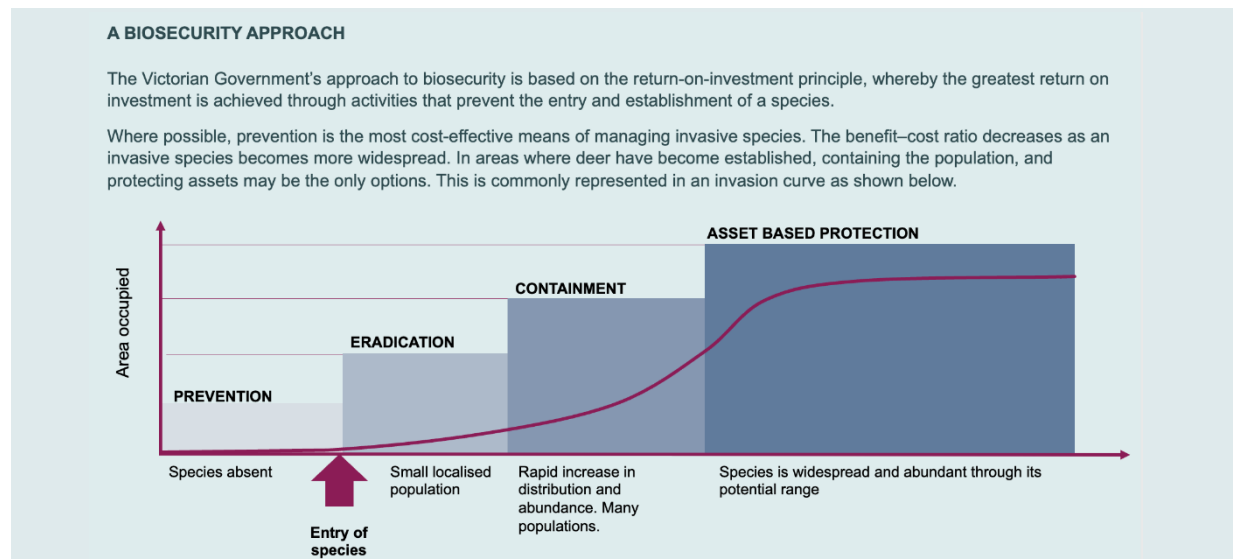


Figure 4. The Biosecurity Approach (Department of Environment and Primary Industries (DEPI) 2017)

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: Bunurong Land Council; Gunaikurnai Land and Waters; Taungurung Land and Waters Council; Wurundjeri Woi Wurrung Cultural Heritage; and Yorta Nation Aboriginal Corporations.



Figure 5. Gunaikurnai Land and Waters Aboriginal Corporation (GLAWAC) staff inspecting lakeside deer pugging – East Gippsland Conservation Management Network

2 Deer in eastern Victoria

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 unicolor*). 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).

In eastern Victoria, Sambar is the most common and widespread species of deer found throughout most of the region, including French Island, whilst Fallow and Red Deer have patchy distributions. Hog Deer are mainly limited to coastal areas of Gippsland, including Wilsons Promontory National Park and Nooramunga Marine and Coastal Reserve (DELWP 2020).

Some hybridisation of deer is also starting to occur where species' distributions overlap, with hybridisations of Rusa and Sambar confirmed in the south-east of Victoria.

Current reporting of locations of deer largely conform to the known distributions of the breeding range of each species (Figure 6). 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.

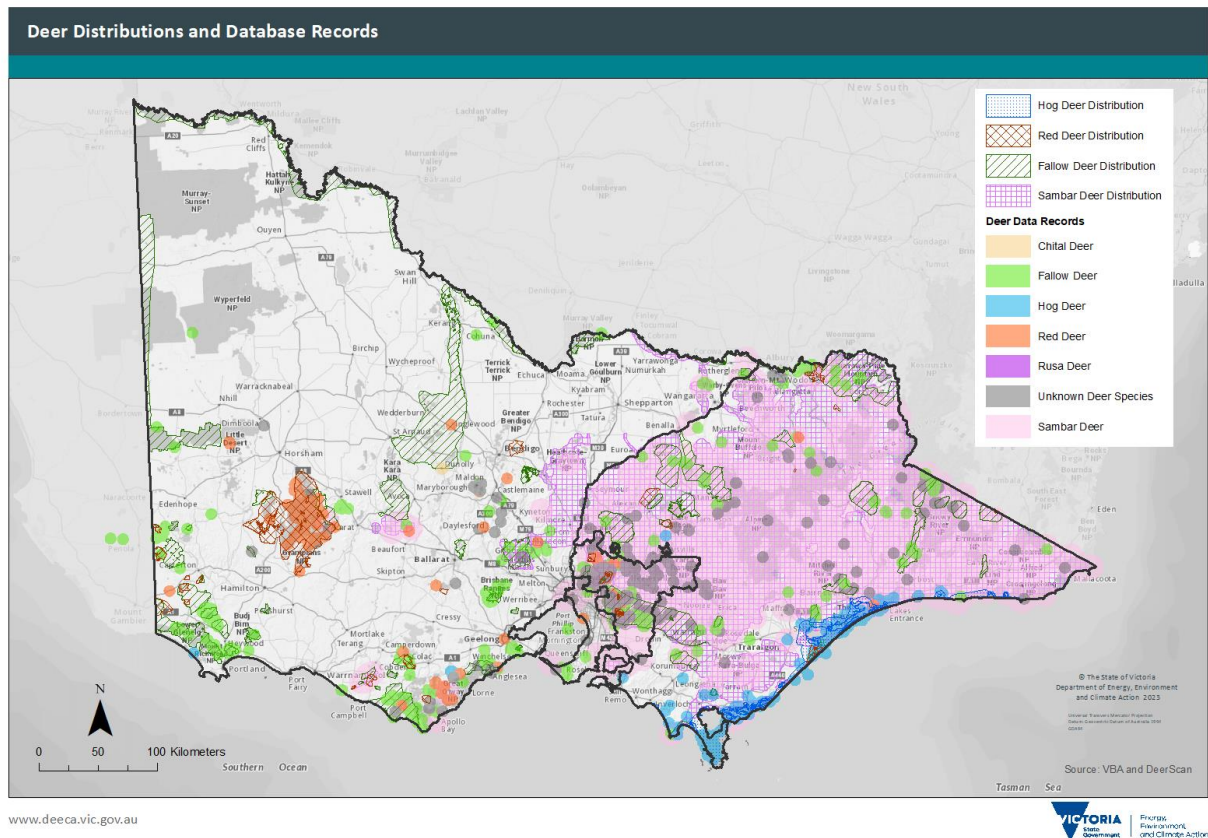


Figure 6. Deer species distribution and recent community records of deer (hotspots)

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 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. Rubbing of tree bark by deer - VPAC

2.3 LAND USE IN EAST VICTORIA

Eastern Victoria has extensive areas of contiguous native forests, parks and reserves, production forestry and agriculture, with conservation and forestry being the largest land uses (61%) of the within the planning area (Figure 8) (ABARES 2016).

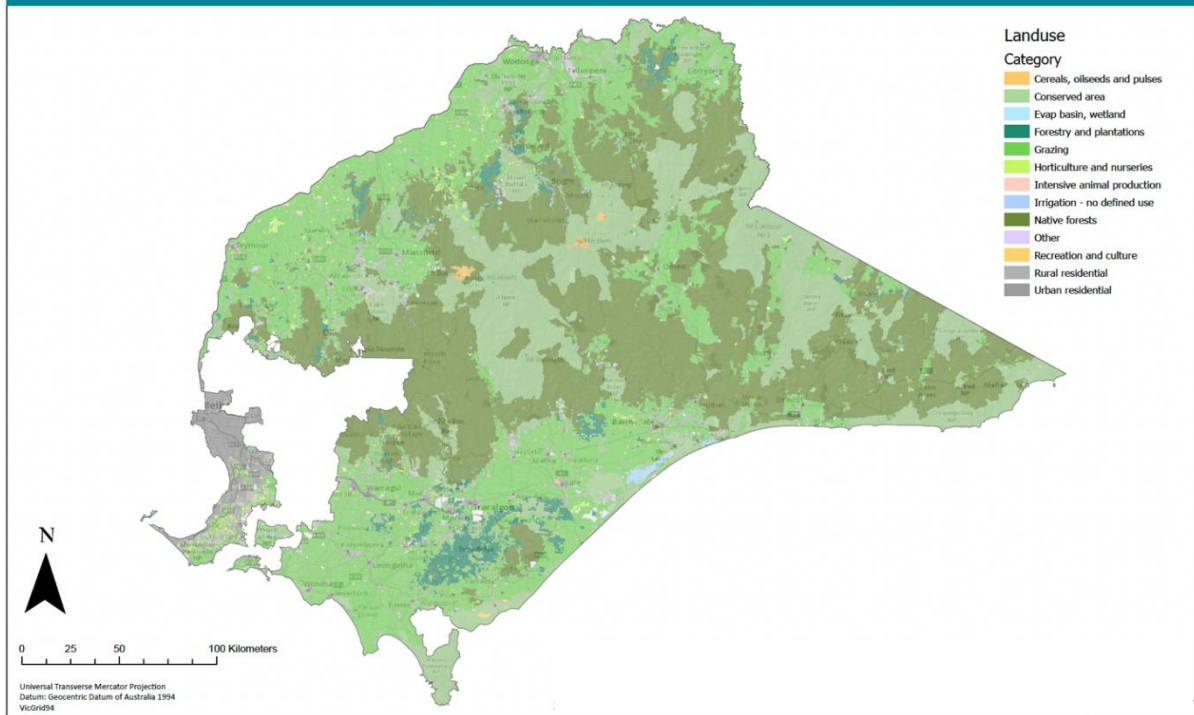
The Australian Alps National Parks and Reserves, including Alpine, Mt Buffalo, Snowy River and Baw National Parks and Avon Wilderness have National Heritage status. These significant reserves cover vast areas across Victoria's east and are threatened by the presence of deer.

There are also several Ramsar sites and Heritage Rivers throughout the region that are protected under international conventions, Commonwealth and State legislation for their environmental, cultural and / or social value. These large natural areas typically associated with waterways provide suitable habitat for several deer species, most commonly Sambar which has significant negative impacts on a range of threatened flora and vegetation communities, varying from salt marsh to rainforests and alpine peatlands (FFG SAC, 2007).

Some of these areas are also declared special water supply catchments, providing significant sources of water supply for domestic use, irrigation and stock (Agriculture Victoria, 2020). Deer can have impacts on water quality by being a source of waterborne parasites (e.g. giardia) and by causing soil erosions and increasing sedimentation of water.

Private and leasehold land accounts for approximately 35% of land in eastern Victoria and is primarily used for agriculture, including grazing, plantation forestry, intensive animal industries (e.g. dairy, piggery and poultry), horticulture and cropping. Intensive land uses, including dairy and horticulture, are generally located on the edges of the highlands on the cleared valleys and plains (Agriculture Victoria, 2020). Agricultural lands that are frequently affected by deer tend to be those that are adjacent to denser vegetation cover, regardless of tenure.

The coastal parts of the region support significant ecological communities and waterways including Corner Inlet, Gippsland Lakes and Westernport Bay (DELWP 2022). Hog deer tend to be found in these areas and, along with other more widespread species such as Sambar and Fallow Deer, are collectively impacting on several sensitive salt marsh and coastal ecosystems from browsing and wallowing.



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

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

Deer are known to impact on the integrity of endangered ecological communities, from Littoral Rainforests and Coastal Vine Thickets to Alpine Sphagnum Bogs and Associated Fens (alpine peatlands); and consequently also impact on the habitat of various threatened flora and fauna (Peel et al 2005; Forsyth 2007; Clemann & Gillespie 2010).

Negative impacts of deer on these values are mainly caused by herbivory (browsing and grazing), antler rubbing, 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 species and vegetation communities, particularly where they are spatially restricted or preferentially used by deer.

For example, Alpine Sphagnum Bogs and Associated Fens ecological community is listed as critically endangered under the EPBC Act. As a spatially restricted community favoured by deer for wallowing and social interactions, impacts are frequently observed over most of the Alpine National Park (Tolsma 2009). This has resulted in these vegetation types being a focus for deer control operations over the past several years to reduce damage to this endangered ecosystem, whilst also protecting catchment headwaters and habitat for many other rare and threatened species (Hampton and Davis 2020).

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.

Protecting Victoria's Environment – Biodiversity 2037 (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)

CULTURAL HERITAGE

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

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 result from faeces decomposition near the 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 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 in eastern Victoria have reported damage 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 that is close to deer 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).

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.



Figure 9. Pine bark stripping by deer at HVP softwood plantation – Amy Kirk, HVP Plantations

SOCIAL

Rural communities have reported deer damaging private gardens and presenting public safety issues (e.g. entering school grounds) 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 the region's main arterial roads and highways. 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 10. Deer rub on forest sign - Stefan Kaiser

2.5 CHALLENGES OF MANAGING DEER

Sambar, Fallow, Red and Hog deer are well established in the wild across 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.

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, including the Alpine National Park, 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 east of the state for several years in controlling populations of deer in the Alpine region.

As deer populations grow in eastern Victoria, riparian and other vegetation corridors that link remnant vegetation also allow deer to move across the landscape, regardless of tenure, and are also being increasingly impacted. Although these pathways make prevention of new incursions or elimination of existing populations difficult, remnant islands of vegetation and pinch points along the 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 damage on particular values, be it ecological, cultural or economic.

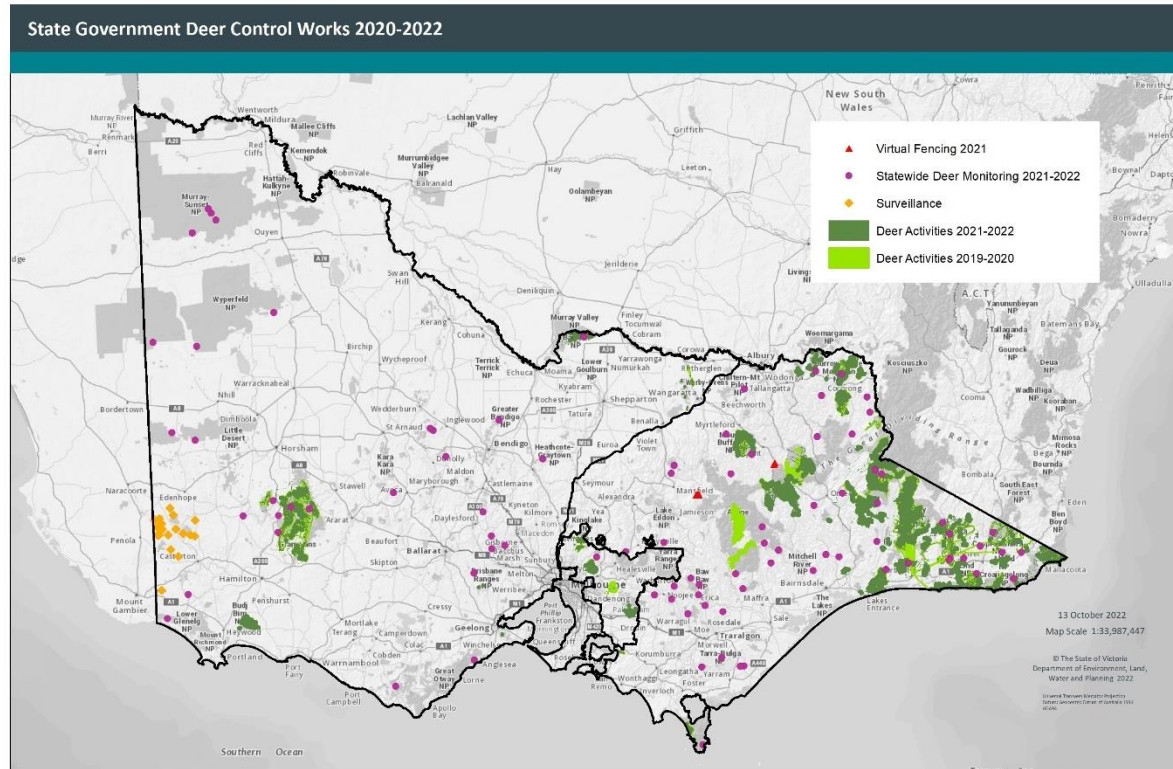
Deer management methods must also consider the scale of action that is required to have an effective outcome. As deer can travel large distances, control efforts need to consider their movements within their home range or landscape. This will often mean coordinated actions are required across large areas, including across tenures on public and private lands.

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). Fencing is generally not used across larger landscapes, however, the Wilsons Promontory Safe Haven is one example where fencing (established across the Yanakie Isthmus) supports multiple conservation objectives.

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. As fencing may also impact native animal movement, potentially impacting species recruitment and dispersal, they can be designed with modifications to allow native animals such as wombats, wallabies and kangaroos to pass whilst excluding deer, and where necessary adapted to exclude feral pigs.

Control options available to manage deer also become more challenging in areas more densely populated or subject to high visitation (e.g. Mornington Peninsula or Bright) 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



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Figure 11. Deer control works undertaken by State Government agencies in Victoria 2019-2022

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

The Alpine National Park Deer Control Trial, established in 2015, provided valuable evidence to guide the application of efficient and effective deer control to protect endangered alpine peatlands, as well as other remote environments. See [Case Study 1](#) for details.

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, including alpine peatlands, rainforests, 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 11 shows some of the recent control works undertaken by State Government agencies since the 2019-2020 bushfires.

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 VDCS, and prior to the release of the Regional Deer Control Plans. Actions included surveillance to detect incursions of *Rusa* deer, 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 collision near Mt Buller, and establishment of a statewide camera and vegetation monitoring project to support long term deer population modelling.



Figure 12. 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 eastern Victoria. This is often undertaken by the property manager and has also utilised local volunteer shooters coordinated through community action groups, providing good examples of how working together, including with industry, has positive benefits.

These community projects have included actions such as deer exclusion fencing, monitoring, ground-based shooting using volunteers, professional contractors and commercial harvesters, as well as community engagement and education. Various examples have been successfully coordinated by the Upper Murray Landcare Network, Mitta Valley Landcare, Ovens Valley Landcare, South Gippsland Landcare Network and the Harrietville community. Trust for Nature (Victoria) has also been funded by the Australian Government to undertake deer control works in impacted locations on private land within east Gippsland.

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 (e.g. Devilbend Natural Features Reserve) and in more remote locations (e.g. Mitchell River National Park). These works are not represented on the map shown in Figure 11 but are important to acknowledge.



Figure 13. Fallow deer in grazing land - Simon Feillafe

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. Carcasses supplied to meat processing facilities are used as pet food, for human consumption as venison, and other products.



Figure 14. Fallow Deer, South Gippsland Landcare Network

Deer harvested by recreational hunters holding a game license

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% 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 control 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 eastern Victoria

3.1 GENERAL APPROACH

The approach to setting priorities for deer control in eastern 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 decision support tool.
- 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 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 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 over 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 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 eastern 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 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.

Works include exclusion fencing and localised control.

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, Sambar Deer are widespread across the Alpine region and values have been mapped as asset protection, however incursions of new species, such as Rusa Deer, will be prioritised as 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 15 shows where each priority value is located. Figure 16 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
Prevention			
New deer species incursions	All priority locations for deer control as mapped in SMP Sites include: <ul style="list-style-type: none"> Point Nepean National Park Victorian State border areas 	DEECA, Parks Victoria, Traditional Owners, GMA, SSAA, ADA	In line with the biosecurity approach, it is more cost effective to prevent deer from establishing in new areas than future containment or control. Sites for local prevention are those where deer are likely to impact on high biodiversity values if populations are left to expand in distribution and size (e.g. Pt Nepean National Park). Genetic analysis confirming hybridization of species not yet established in Victoria (e.g., Rusa) with Sambar has been detected along the Victorian – New South Wales border at Mt Granya State Park and Far East Gippsland. Monitoring to prevent establishment of Rusa in Victoria (particularly females) and guide future control activities remains a priority.

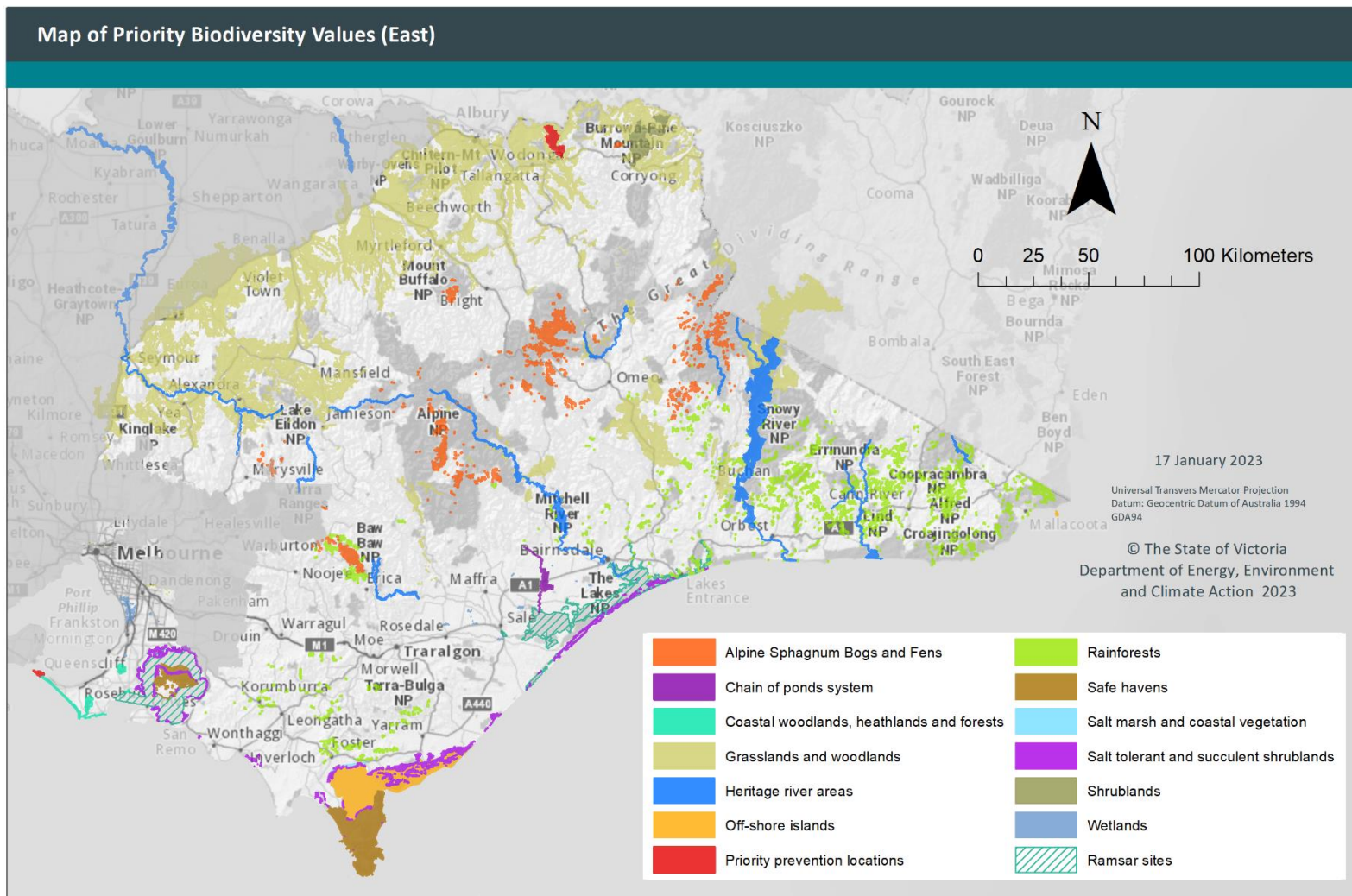
Type of value	Priority locations / EVCs	Potential partners	Explanation
Local elimination			
Off-shore islands	Barrier Islands (Corner Inlet) (including Ramsar site)	Parks Victoria, adjoining landholders, Traditional Owners, DEECA, West Gippsland CMA, Trust For Nature (TFN), community groups	The Barrier Islands are made up of over 20 sand islands and sites of geological and geomorphological significance. They are susceptible to damage from deer but, as islands, there is potential to eliminate deer and monitor to prevent re-establishment.
	Gabo Island	Parks Victoria, DEECA, Traditional Owners, East Gippsland CMA, community groups	Recognised by Birdlife International as an Important Bird and Biodiversity Area, Gabo Island currently has few deer present so there is potential to achieve eradication, and then focus on preventing new incursions through ongoing surveillance.
New deer species incursion	All priority locations for deer control as mapped in SMP	DEECA, Parks Victoria, Traditional Owners, GMA, SSAA, ADA	<p>In line with the biosecurity approach, it is more cost effective to control small numbers of deer as soon as they appear in new areas to prevent them establishing there.</p> <p>Sites for 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.</p> <p>Rusa deer have been sighted in the north-east of Victoria. The addition of new species in the region will present additional threats to biodiversity and it is important to prevent their entry and establishment in the region.</p>
Local elimination (greater than 5 years to achieve)			
Safe Havens	French Island Safe Haven	Parks Victoria, DEECA, Traditional Owners, Melbourne Water, Trust For Nature, community groups	Among the aims of the Safe Havens is that key threats to species and ecosystems can be removed or significantly suppressed, not just managed. There are already pest animal control programs operating at these locations so there is potential, with additional resourcing, to eliminate deer from these sites.
	Wilson's Promontory National Park Safe Haven	Parks Victoria, DEECA, Traditional Owners, West Gippsland CMA, community groups	
Containment			
Salt marsh and coastal vegetation	Corner Inlet salt marsh and coastal vegetation (including Ramsar site)	Parks Victoria, DEECA, Traditional Owners, West Gippsland CMA, community groups	<p>This ecosystem supports various listed species (burrowing crayfish and spiny crayfish) and listed native vegetation (coastal salt marsh). These species and vegetation are susceptible to pugging and wallowing from deer.</p> <p>There is potential to create a containment area that focusses on removing deer from the coastal native vegetation and adjacent farmland. This would also help to prevent re-</p>

Type of value	Priority locations / EVCs	Potential partners	Explanation
			<p>establishment of deer on the Barrier Islands. There are established groups and networks here that could contribute to this approach.</p> <p>Note: The containment line shown on the map around Wilsons Promontory is to contain Hog Deer within the coastal area and prevent Fallow Deer spreading into Wilsons Promontory and the coastal area.</p>
Coastal woodlands, heathlands and forests	<p>Mornington Peninsula:</p> <ul style="list-style-type: none"> • Mornington Peninsula National Park • Devilbend Natural Features Reserve • Coolart wetlands • Tootgarook Swamp 	Parks Victoria, Local Government, DEECA, SSAA, ADA, Landcare	<p>Populations of deer have been recorded across the Peninsula in a number of locations. Reserves in the area support a range of biodiversity values including several threatened EVC's, flora and fauna.</p> <p>Control of deer within these areas will benefit agricultural, road safety and conservation outcomes locally and avoid increased impacts of herbivores including deer.</p> <p>Further investigation is required to determine population distributions of Fallow, Sambar and potentially Hog Deer throughout the region. Investigate deer impacts to determine whether local elimination is possible.</p>
Asset protection			
Alpine Sphagnum Bogs and Associated Fens ecological community (alpine peatlands)	Alpine bogs and fens. Locations are listed below.	DEECA, Parks Victoria, Traditional Owners, North East CMA, East Gippsland CMA, West Gippsland CMA, Goulburn Broken CMA community groups	Alpine bogs and fens are endangered under the EPBC Act and threatened in the FFG Act. Threats from deer include browsing, trampling, and wallowing. Wallows damage waterbodies and the habitat of threatened species like the Alpine Bog Skink and Alpine Tree Frog. There is a well-coordinated deer management program already in place being led by Parks Victoria.
	Pheasant Creek Flora Reserve	Parks Victoria, Traditional Owners, North East CMA, HVP	This area supports over 40 threatened species including summer/Shelley leek-orchid. This area also contains lower elevation bogs and fens, which are susceptible to deer wallowing. A 5 hectare fenced area has been created to exclude deer to protect these values.
	Lower elevation bogs and fens at Kiewa terraces	Parks Victoria, DEECA, Traditional Owners	Similarly to the alpine bogs and fens, the lower elevation bogs and fens are also at risk from deer browsing, trampling, and wallowing. Investigate impacts.
Shrublands	Rocky Outcrop Shrubland in Burrowa Pine Mountain National Park	Parks Victoria, DEECA, Traditional Owners, North East CMA	The rocky outcrop shrubland EVC found here is rare and deer pose a serious threat to this community. This area has had significant investment in deer control as part of DEECA's Bushfire Biodiversity Response and Recovery program.

Type of value	Priority locations / EVCs	Potential partners	Explanation
	Silurian Limestone Pomaderris Shrubland of the South East Corner and Australian Alps Bioregions - east of Omeo	Parks Victoria, DEECA, Traditional Owners	This EVC is listed as endangered under the EPBC Act and is susceptible to trampling and substantial browsing from deer.
Grasslands and woodlands	White box - Yellow Box - Blakely's Red Gum Grassy Woodland (Upper Snowy)	Parks Victoria, West Gippsland CMA, Trust for Nature, DEECA, Traditional Owners, community groups	Introduced animal species are considered a significant threat to Box-Gum Grassy Woodlands. Herbivores such as rabbits, hares, goats and deer increase grazing pressure, prevent regeneration of native trees and shrubs and facilitate the spread of weeds. White box - Yellow Box - Blakely's Red Gum Grassy Woodland extends across much of the northern area of this Plan area, with private land covenants scattered throughout. Protection of intact remnant patches of this EVC should focus on areas adjacent to large areas of public land.
	Red Gum Grassy Woodlands (private land)	Trust for Nature, community groups (e.g., Conservation Management Networks), SSAA, ADA, GMA, North East CMA, Goulburn Broken CMA, Landcare	Red Gum Grassy Woodland is listed as a threatened community under the FFG Act. Priority areas for control of deer occur between Ensay and Omeo and also the Upper Snowy, to improve natural regeneration.
Rainforests	Cool Temperate Rainforest – Central Highlands, Strzelecki Ranges, Baw Plateau	DEECA, Parks Victoria, Traditional Owners	Listed as threatened under the FFG Act. Threats from deer include browsing, trampling and bark removal (FFG Action Statement).
	Dry Rainforest (Limestone)	DEECA, Parks Victoria, Traditional Owners	Listed as threatened under the FFG Act. Threats from deer include browsing, trampling and bark removal (FFG Action Statement).
	Warm Temperate Rainforests: <ul style="list-style-type: none"> Coastal East Gippsland Howe Range (cool temperate overlap) East Gippsland Alluvial Terraces Far East Gippsland 	Parks Victoria, DEECA, Traditional Owners, East Gippsland CMA, Trust for Nature	Listed as threatened under the FFG Act. Threats from deer include browsing, trampling and bark removal (FFG Action Statement).
	Littoral Rainforest of eastern Australia (particularly after fire)	Parks Victoria, DEECA, Traditional Owners	Listed as critically endangered under the EPBC Act. This EVC is scattered from around Lakes Entrance to NSW border. Threats from deer include browsing, trampling and bark removal.

Type of value	Priority locations / EVCs	Potential partners	Explanation
	Cool Temperate Rainforest – Central Highlands	DEECA, Parks Victoria, Traditional Owners, Goulburn Broken CMA,	This EVC is listed as threatened under the FFG Act. Threats from deer include browsing, trampling and bark removal (source: FFG Action Statement). Cool Temperate Rainforest where Myrtle Beech makes up more than 20% of the rainforest canopy at greater risk due to spread of myrtle wilt through wounds in bark from deer rubbing and bark stripping. Investigate deer impacts at these locations to determine need for action.
Salt tolerant and succulent shrublands	Salt Tolerant and Succulent Shrublands – Mornington Peninsula	Parks Victoria, DEECA, Traditional Owners	Listed as vulnerable under the EPBC Act. Threats from deer include browsing and trampling.
	Salt Tolerant and Succulent Shrublands – South Gippsland		
Ramsar sites	Heart Morass & Sale Common (including Ramsar site)	Parks Victoria, DEECA, Traditional Owners	Heart Morass is a wetland between two Ramsar sites. Revegetation works have already been completed here. It is at risk from browsing, trampling and wallowing.
	Gippsland Lakes Ramsar site	West Gippsland CMA, DEECA, Traditional Owners, Parks Victoria, Trust for Nature, adjoining landholders, Landcare	Grazing and trampling on riparian/coastal habitats from deer (and other animals) identified as priority threat in the freshwater wetlands, variable saline wetlands, and estuarine reaches (2015). Hog deer on Boole Poole Peninsula (managed for hunting) and in Blond Bay Game Reserve (2003). This is based on the Strategic Management Plan 2003 and Site Management Plan 2015. Investigate deer impacts at these locations to determine need for action.
	Western Port Ramsar site	Melbourne Water, DEECA, Traditional Owners, community groups, Parks Victoria	The Ramsar Protection Program (2013-2018) - Western Port and Port Phillip Bay Ramsar sites: managed land for deer and exclusion fences installed. Investigate deer impacts at these locations to determine need for action.
Chain of ponds system	Perry River and Providence Ponds	DEECA, Parks Victoria, HVP, West Gippsland CMA, Trust for Nature, adjoining landholders, Landcare	Chain of Ponds systems are unique and were once common across South-eastern Australia but are now very rare. The Perry River system including Providence Ponds form one of the most intact examples in Victoria and supports various threatened species and communities including EPBC listed New Holland Mouse and Red Gum Grassy Woodland. Wallows and sedimentation also impact dwarf galaxias habitat.
Wetlands	Seasonal Herbaceous Wetlands	Parks Victoria, DEECA, Traditional Owners, Trust for Nature	This EVC is listed as critically endangered under the EPBC Act. Deer browsing, trampling, and wallowing can significantly alter the structure of this community. Investigate deer impacts at these locations to determine need for action.

Type of value	Priority locations / EVCs	Potential partners	Explanation
Heritage River Areas	Mitta Mitta River Heritage Area	DEECA, Parks Victoria, Traditional Owners, North East CMA	Protected under the <i>Heritage Rivers Act 1992</i> for its cultural, environmental, and recreational value. Riparian areas are susceptible to wallowing and pugging, which can impact on water quality. Investigate deer impacts at these locations to determine need for action.
	Howqua River Heritage Area	DEECA, Parks Victoria, Traditional Owners, Goulburn Broken CMA, landholders, community groups, HVP	Protected under the <i>Heritage Rivers Act 1992</i> for its cultural, environmental, and recreational value. Riparian areas are susceptible to wallowing and pugging, which can impact on water quality. Investigate deer impacts at these locations to determine need for action.
	Big River Heritage Area		
	Ovens River Heritage Area		
	Goulburn River Heritage Area		
	Genoa River Heritage Area	DEECA, Parks Victoria, Traditional Owners, East Gippsland CMA, landholders, community groups	Protected under the <i>Heritage Rivers Act 1992</i> for its cultural, environmental, and recreational value. Riparian areas are susceptible to wallowing and pugging, which can impact on water quality. Investigate deer impacts at these locations to determine need for action.
	Bemm, Goolengook, Arte and Errinundra River Heritage Areas		
	Snowy River Heritage Area		
	Suggan Buggan and Berrima Rivers Heritage Area		
	Upper Buchan River Heritage Area		
	Mitchell and Wonnangatta Rivers Heritage Area		
	Thomson River Heritage Area	DEECA, Parks Victoria, Traditional Owners, West Gippsland CMA, landholders, community groups	Protected under the <i>Heritage Rivers Act 1992</i> for its cultural, environmental, and recreational value. Riparian areas are susceptible to wallowing and pugging, which can impact on water quality.
	Aberfeldy River Heritage Area		

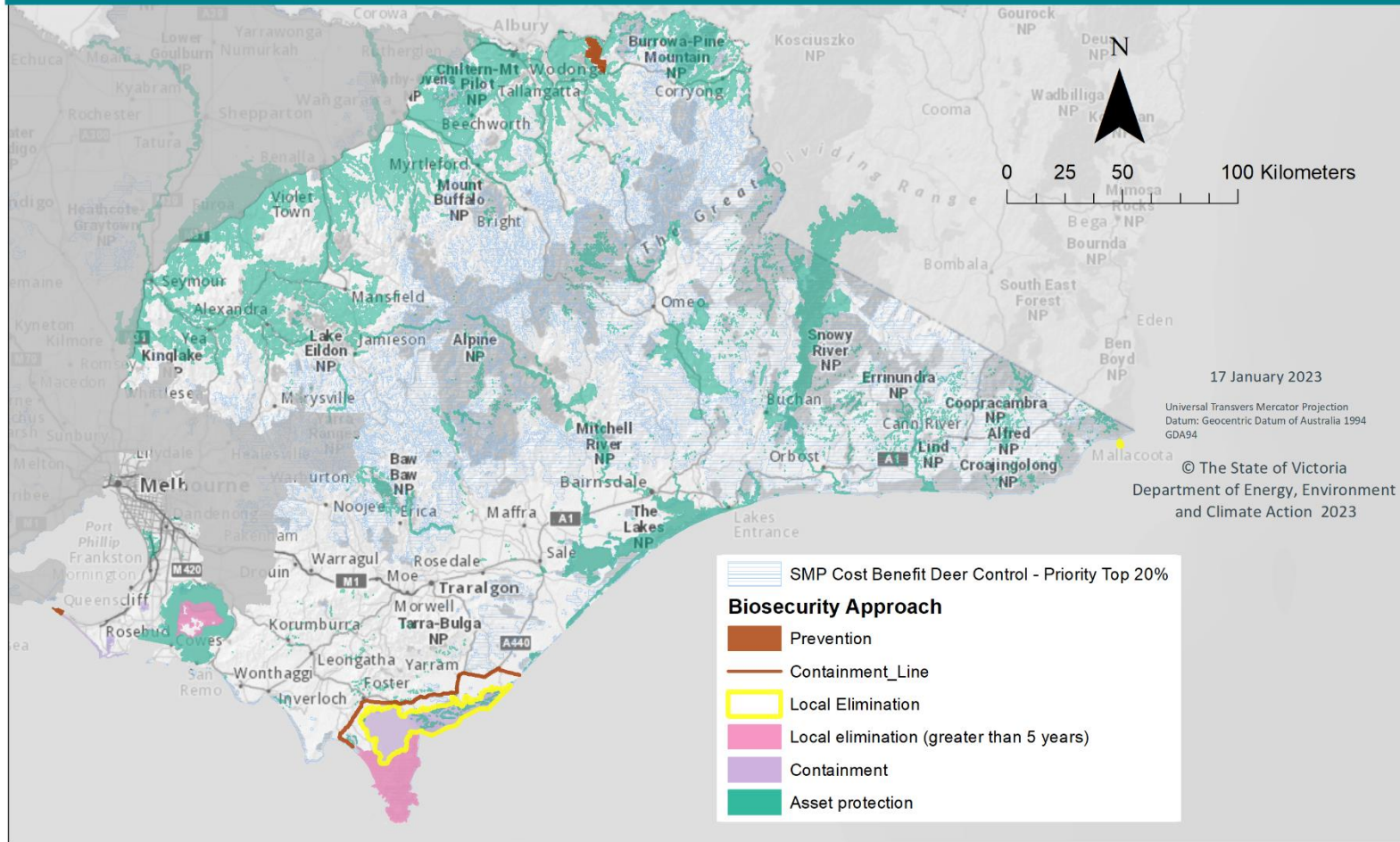


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Figure 15. Map of priority values. This map is indicative as not all values in all locations are visible due to its scale. Table 4-1 is the primary source of information for all values

Map of Priority Biodiversity Values (East) - Biosecurity Approach



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Figure 16. 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: 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 17. 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.

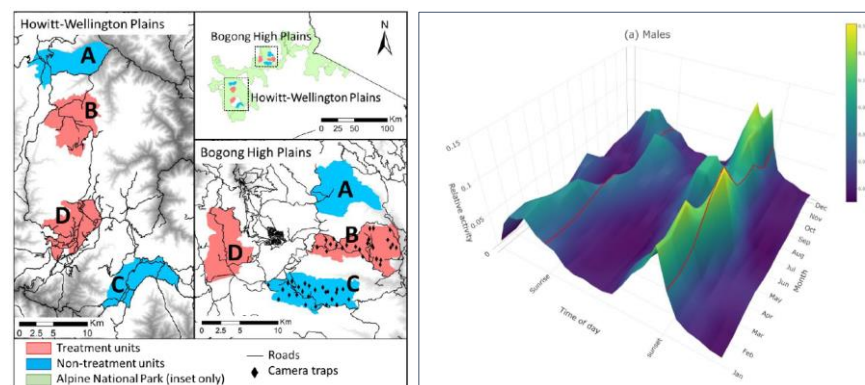


Figure 18. Map of trial areas and deer movements

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.

CASE STUDY 2: 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 two 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 19. Image of deer from camera monitoring

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

PRINCIPLES FOR ACTION

Eastern 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 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 Harrierville and Tallangatta are increasingly reporting deer collisions as well as 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 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 Perry River and Providence Ponds area as a priority location 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 vigneron.

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 supported where they align with the principles for action.

Table 4-2: 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 (SSAA), Australian Deer Association (ADA), Game Management Authority (GMA)
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, GMA
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.	Asset protection	e.g., water authority, public land manager

CASE STUDY 3: SUPPORTING COLLECTIVE ACTION IN THE PERRY RIVER AND PROVIDENCE PONDS CATCHMENT

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

Issue: The Perry River and Providence Ponds Flora and Fauna Reserve is located on the boundary of East and West Gippsland and adjoins private grazing land, softwood plantations and state forests. High densities of deer have been observed using these areas for browsing and wallowing, leading to both sedimentation impact on dwarf galaxias habitat and damage to HVP's softwood plantations (rubbing and stripping bark).

Significance: Perry River and Providence Ponds Flora and Fauna Reserve is a unique waterway and forms one of the most intact chain of ponds systems in Victoria, which were once common across South-eastern Australia and now rare. This area supports a high diversity of threatened flora species; EPBC listed Galaxias, EPBC listed New Holland Mouse, and EPBC listed Red Gum Grassy Woodland.

This area also adjoins both HVP plantations and private land predominately used for grazing. Deer are known to rub and strip bark from soft wood plantation trees, which can affect tree growth and render that part of the tree unsuitable for timber production. This has significant costs for HVP.

Collective action: Works to improve and preserve this system have occurred for many years. West Gippsland CMA, Parks Victoria, Wellington Shire Council, Trust for Nature, HVP, Landcare and private landholders have been working in partnership to achieve better ecological outcomes for the area including targeting invasive species, expanding areas under covenant to formally protect them, creating riparian buffers within HVP plantations, and fencing off the waterways with private landholders.

Leveraging these existing partnerships to undertake deer control across land tenures would better achieve outcomes and reduce the impact of deer on local biodiversity, economic and social values. There are similar scenarios with several adjoining land tenures, with multiple values experiencing deer impacts - these too are cases where collective action would have greater impact and should be supported.

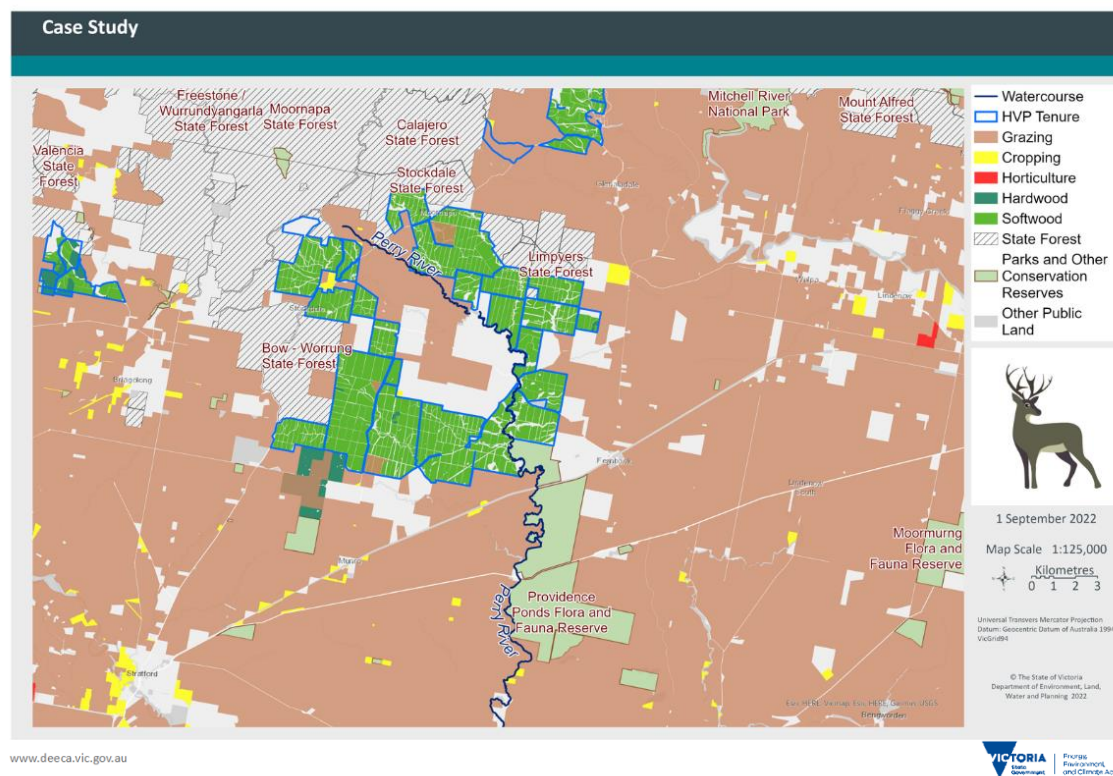


Figure 20. Map of Providence Ponds area

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 21. 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 eastern 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 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 platforms 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 potential partners for each action.

[Case study 5](#) is an example of a local community working with volunteer hunters as part of their local control efforts.

[Case study 6](#) is a local 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 building capacity of local hunters and landholders through training and monitoring

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, VBA Go, DeerScan, iNaturalist	DEECA, Parks Victoria (PV), Regional Roads Victoria, VDCCN, 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, VDCCN, 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, VDCCN, CMAs, SSAA, ADA, GMA, HVP	To empower communities to understand deer impact and initiate their own deer management programs with support from public land managers

CASE STUDY 5: 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 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 22. South Gippsland landholders installing fencing

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

Issue: Growing concern around the impacts of deer prompted neighbours in the north-east to improve their understanding of the issues and management options.

Action: In 2015, with North East 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, impacts on environment and management of illegal hunting.

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

Landholders took an adaptive approach to managing deer impacts. They successfully trialled rotational grazing to reduce available feed for deer in paddocks adjoining the bush, installed deer proof fences where needed, and engaged professional commercial harvesters and recreational hunters to remove deer from their properties. Some landholders also purchased thermal rifle scopes and started using moon cycles to improve their own effectiveness with deer control. Learnings from these management tools were then shared through the Landcare group and public forums.

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 23. Ben Teek from Tallangatta South next to a deer damaged fence - Parks Victoria - Mitta Valley Landcare

CASE STUDY 7: 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 directly 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 24. 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 deer numbers in the Otways, while also creating jobs, as well as a sustainable local food source.



Figure 25. Community field day on monitoring and deer harvesting - CEC

5 Monitoring, evaluation and reporting

A monitoring, evaluation, and reporting framework (MER framework) for the VDCS was under development at the time this East Victoria Deer Control Plan was written. It is anticipated that the VDCS MER framework will outline monitoring indicators for each of the goals. The VDCS MER will contain further details on monitoring and evaluation, including monitoring of management effectiveness, using techniques such as Before-After-Control-Impact (BACI).

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 5-1: 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 	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, Trust for Nature, 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

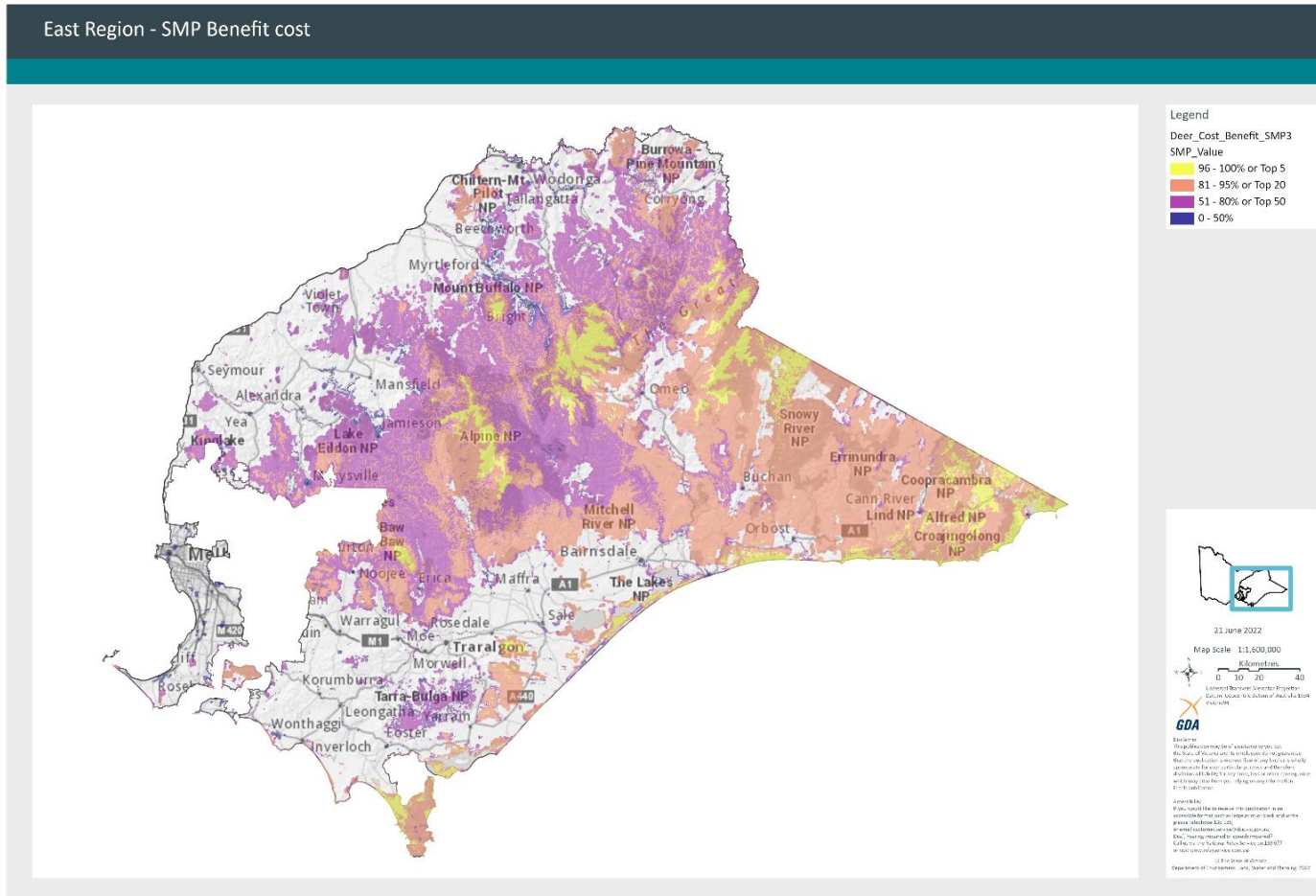
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Abbreviations

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
EGCMA	East Gippsland Catchment Management Authority
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
NECMA	North East Catchment Management Authority
PV	Parks Victoria
SMP	Strategic Management Prospects
TO	Traditional Owner
VBA	Victorian Biodiversity Atlas
VDCS	Victorian Deer Control Strategy
WGCMA	West Gippsland Catchment Management Authority
WGFH	Wild Game Field Harvesters

Appendix 1: SMP deer control cost-benefit map



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Figure 26. Strategic Management Prospects (V3) Deer Control Cost-Benefit