

# Protection of the Alpine National Park - Feral Horse Strategic Action Plan 2018–2020 (Draft)





This report has been prepared by Parks Victoria.  
Environment and Science Division  
Parks Victoria (ABN 95 337 637 697)

Copyright © Parks Victoria 2017  
Level 10, 535 Bourke Street, Melbourne VIC 3000

#### **Photo credits**

Photos © Parks Victoria except as noted below where  
copyright belongs to the credited photographer or institution

Museums Victoria, horses at Native Dog Flat (Figure 1, page 5)  
Henrik Wahren, Mt Nelse (Figure 3, page 8)  
Royal Tasmanian Botanic Gardens, Small Star-plantain (Figure 4, page 8)  
David Paul, Museums Victoria, Alpine Spiny Crayfish (Figure 6, page 9)  
David Paul, Museums Victoria, Broad-tooth Rat (Figure 7, page 9)  
G Worboys, Alpine Water-skink (Figure 8, page 10)  
David Paul, Museums Victoria, Alpine Tree Frog (Figure 9, page 10)  
Rodney Start, Museums Victoria, Horse mob with foals (Figure 20, page 15)

## Contents

<b>1</b>	<b>Executive summary.....</b>	<b>3</b>
<b>2</b>	<b>Purpose of the plan .....</b>	<b>4</b>
<b>3</b>	<b>Background .....</b>	<b>6</b>
<b>4</b>	<b>Environmental values .....</b>	<b>8</b>
4.1	Vegetation .....	8
4.2	Fauna and habitat dependency .....	9
<b>5</b>	<b>Heritage values.....</b>	<b>11</b>
5.1	Risks to Aboriginal cultural heritage values: Greater Alpine parks .....	11
5.2	Post-settlement heritage value of horses .....	11
<b>6</b>	<b>Known and potential impacts of feral horses .....</b>	<b>12</b>
<b>7</b>	<b>Conservation objectives and outcomes .....</b>	<b>16</b>
<b>8</b>	<b>Management approach.....</b>	<b>17</b>
8.1	Abatement of current threats in the Victorian Alps.....	18
8.1.1	Proposed control methods.....	19
8.1.2	Management actions for the removal of horses in the Alps.....	22
8.1.3	Management of captured horses .....	22
8.1.4	Location-based control and removal methods .....	23
8.2	Stakeholder and community engagement .....	24
8.2.1	Consultation and social objectives .....	24
8.2.2	Key stakeholders and partners .....	24
8.2.3	Communications.....	25
<b>9</b>	<b>Monitoring, evaluation and research.....</b>	<b>26</b>
9.1	Monitoring and evaluation.....	26
9.2	Input monitoring .....	26
9.3	Activity monitoring.....	26
9.4	Feral horse monitoring .....	27
9.4.1	Estimating horse abundance across the landscape.....	27
9.4.2	Estimating local horse abundance.....	27
9.4.3	Animal welfare.....	27

9.5	Natural and cultural values monitoring.....	28
9.5.1	Natural values.....	28
9.5.2	Cultural values .....	28
9.6	Research to address priority knowledge gaps.....	29
<b>10</b>	<b>Reporting and review .....</b>	<b>30</b>
<b>11</b>	<b>References.....</b>	<b>31</b>
<b>12</b>	<b>Maps</b>	

## 1 Executive summary

Horses are not a natural part of Australian environments. Their hard hooves can cause serious damage to alpine, subalpine, montane and floodplain environments. This includes the destruction of habitat critical to many threatened plant and animal species, damage to waterways, degradation of fragile vegetation, and soil disturbance that results in erosion or compaction. A reduction in the abundance of feral horses in Victoria's national parks is necessary to protect natural and cultural values and meet obligations under the *National Parks Act 1975* (Vic.), *Flora and Fauna Guarantee Act 1988* (Vic.), *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth), and the international Ramsar Convention.

This plan focuses on Victoria's alpine areas. It outlines where and how feral horses will be managed in the Alpine National Park and adjacent state forests between 2017 and 2020. Over recent years, small numbers of horses have been removed from the Victorian Alps, in cooperation with horse interest groups. However, this process has not been sufficient to mitigate the severe impacts of horses on vulnerable areas, particularly to riverine wetlands, alpine peatlands and streambanks. As a result, some iconic areas of our parks, such as the source of the Murray River in the Alpine National Park, are in very poor condition and are not showing resilience to the impacts of horses.

To ensure the persistence of healthy ecosystems and their function in the Alps, an increased rate of removal of feral horses is needed.

Five key conservation objectives are the core of this action plan:

- Reduce damage to alpine wetland and other vegetation communities by expanding and improving feral horse control.
- Improve knowledge of the relationship between feral horse impacts and environmental condition through monitoring and research.
- Protect Aboriginal cultural heritage.
- Prevent the establishment of new populations of feral horses in the Greater Alpine national parks.
- Remove small populations.

Increased horse removal within the Alpine National Parks, and in limited circumstances State Forest adjoining the Alpine National Park, is required to achieve these objectives. Cooperation with other land managers, both public and private will be important to ensure population reductions in the national park will not be compromised by migration from adjacent land.

The proposed actions to achieve the objectives outlined above are :

- Reduce the abundance of feral horses in the Alpine National Park, and prevent the establishment of new populations.
- Support research projects to further develop vegetation and wetland condition assessments, management targets, and to review the appropriateness of roping (brumby running) as a control technique.
- Work with Traditional Owners to recognise and protect Aboriginal cultural heritage.
- Engage with DELWP and other partners, stakeholders and the community in the delivery of humane horse management.

The delivery of this plan will require an understanding of the issues and then a collaborative approach with Traditional Owners, agencies and horse interest groups.

## 2 Purpose of the plan

Feral horse populations can increase rapidly in size and distribution, damage vulnerable natural and cultural values, and in the Australian alps contribute to impacts on water and catchment qualities. A strategic and evidence-based approach is required to ensure that our natural heritage can be protected, and that humane and respectful management of feral horses can be delivered through effective management programs.

The purpose of this plan is to outline conservation objectives and outcomes to be achieved and the key management actions of an expanded horse control program. The plan is intended to:

1. Deliver cross-tenure management of feral horses on public land as proposed in the Greater Alpine National Parks Management Plan (2016), through increased feral horse management in the East Alps and Bogong High Plains-Cobungra area.
2. Protect vegetation communities, waterways and peatlands that are important to the ecological health of the parks and public lands from the impacts of horses.
3. Improve the protection of collective Traditional Owner cultural heritage across the Victorian Alps.
4. Recognise the post-settlement values placed on feral horses (brumbies) and the continued presence of a smaller population of feral horses in the Eastern Alps.
5. Communicate and engage with partner agencies, community and stakeholder groups in the delivery of a humane and effective feral horse management program.

The plan period is for three years, commencing in January 2018 and concluding at the end of 2020. During this three-year period the actions to be delivered through this plan will focus on capture and control, removal and rehoming (where possible), and monitoring and research. Horses will be controlled by observing national codes of practice and standard operating procedures for the management of feral horses, and national and state legislation and regulations.

An annual review of operations will be undertaken to determine progress in the delivery of the management actions outlined in this plan and the extent to which conservation objectives are being met. The plan includes adaptive actions to allow for improvements or changes in delivery practices as needed to reach the objectives.

This plan is also intended to integrate with cross-border park agencies in management of feral horses. The New South Wales National Parks and Wildlife Service, the Australian Capital Territory's Parks and Conservation Service, Parks Australia and Parks Victoria are the four partner agencies of the Australian Alps national parks Cooperative Management Program (AAnp). Feral horse management has been, and remains, a key issue for the three alpine parks agencies. Each of the three alpine park agencies has developed or is developing a feral horse management plan.

A specialist AAnp Program feral horse working group of inter-agency staff cooperate on management and technical activities. This includes funding of research projects and surveys of horse population numbers and spread. Every five years an aerial survey is conducted to ascertain horse population numbers across the Australian Alps. The next planned survey will occur in 2019. The survey looks at known population zones in Victoria (Alpine NP and neighbouring state forest areas), NSW (Kosciuszko NP and neighbouring public land areas) and the ACT (Namadgi NP).

At the conclusion of this action plan implementation period, a full review of the operational outcomes will be undertaken. A new plan will be developed based on this review. Monitoring and research results collected throughout the term of the plan will be included in the review.



**Figure 1:** Feral horses grazing at Native Dog Flat, Alpine National Park.

### 3 Background

Feral horses are present in significant numbers in two regions of Victoria's parks estate. Barmah National Park east of Echuca on the Murray river has a currently estimated population of 200+ animals. Larger and more widespread populations occur in Victoria's Eastern Alps extending into the northwest section of the Snowy River. A separate smaller population occurs on the Bogong High Plains with a population of unknown size in the adjacent Cobungra crown-land to the south-east of the Bogong High Plains.

An aerial survey conducted across the Australian Alps in 2014 has estimated the population in the Eastern Victorian Alps to be around 2350 horses. The Bogong High Plains has a smaller population of around 60–80 animals. Both populations, while situated predominantly within the Alpine National Park, extend into adjacent parks, state forests, reserves and private land.

Feral horses in the Victorian Alps and Barmah National Park are not contained and do not currently occupy their entire potential range.

The condition of a conservation estate is influenced by many complex natural and exotic processes, including invasive plants and animals, direct utilisation by people, climate, water availability and regimes, and large-scale disturbances such as fire and flood. Feral horses are one of several established species of introduced animals, including deer, goats, pigs and rabbits, that influence the condition of the Victorian conservation estate. In parallel with the feral horse control program outlined here, Parks Victoria and Department of Environment, Land, Water and Planning (DELWP) develop and deliver on-ground programs to address these additional pressures on Victoria's natural environment.

For some members of the public and community groups, horses provide a living link to Victorian pioneer and grazing history in the Barmah region and the Alps, and form part of Australian folklore as depicted in 'Banjo' Paterson's poem 'The Man from Snowy River'. Management of horses in national parks and reserves must balance three elements: the right level of protection for our natural environment and pre-European cultural heritage; the humane treatment of feral horses; and social expectations for either a continued heritage connection to the 'brumby' or their management. This plan aims to strike that balance between these elements.

Between 150 and 200 horses have been removed annually from the Alpine National Park since 2008. This has not reduced the population. The impacts of feral horses in the Alpine National Park have now reached critical levels, and without intervention horses will continue to cause long-term and severe degradation of wetlands and waterways and prevent the recovery of these areas. The Alpine National Park contains outstanding natural and cultural values. In recognition of this, it is reserved under Schedule 2 of the *National Parks Act 1975* (Vic.).

The Australian Alps National Parks and Reserves (12 national parks and other reserves) are collectively included on the National Heritage List and protected in accordance with the values (and locations) identified in the listing under the *Environment Protection and Biodiversity Conservation Act 1999*. This listing recognises the Australian Alps as having outstanding heritage value for both natural and cultural features, including the features related to the pioneering history of the high country.

The 'Degradation and loss of habitats caused by feral horses (*Equus caballus*)' has been listed as a threatening process under the Flora and Fauna Guarantee Act 1988.



Under law, an obligation to manage the impacts of horses in parks is well established in Victoria. Section 17(2)(a)(iii) of the National Parks Act provides that exotic fauna must be controlled in national parks. Horses are considered exotic fauna in these areas. The Greater Alpine National Park Management Plan (Parks Victoria 2016) also recognises these requirements.



**Figure 2:** Horses at impacts site undergoing revegetation works, Bogong High Plains, Alpine National Park.

## 4 Environmental values

Australia's ecosystems have evolved without the grazing pressures of heavy, hard-hoofed animals. Such animals can have significant impacts on soils, vegetation communities, stream and river banks, and wetland zones. Impacts on sensitive alpine and floodplain ecosystems include selective grazing, trampling, pugging, degradation of waterways and water quality, removal of vegetation and exposure of bare ground, soil compaction, stream-bank slumping, opening tracks through vegetation, and distribution of weeds.

These ecosystems and their native inhabitants are not adapted to these relatively recently arrived pressures (240 years versus hundreds of thousands of years of evolution without hard-hoofed animals). A combination of climate change effects, recreation activities, and other invasive species puts significant additional pressures on these natural but now changing landscapes (Scientific Advisory Committee 2011).

### 4.1 Vegetation

Vegetation communities in the alps are diverse and complex. They include grasslands, snow-gum woodlands, heathlands, and peatland communities, all of which are impacted by horses. The alpine and subalpine communities are very rare in Australia and support many species that are rare and endemic to the parks, including state and nationally threatened vegetation communities such as alpine sphagnum moss peatlands, snowpatch communities, and associated wetland bogs. Feral horses are a known threat to these vegetation communities and individual species. An assessment of peatlands through the East Alps showed evidence of horse impacts occurring at 85 of the 98 sites surveyed (Tolsma 2008). In a recent alps study, 92% of 186 randomly selected sites in treeless drainage lines showed signs of horses and their impacts (Robertson G. *et al.* 2015).



**Figure 3:** Late snow patch areas and site of the Small Star-plantain (*Plantago glacialis*), Mt Nelse, Bogong High Plains.



**Figure 4:** Small Star-plantain (*Plantago glacialis*)



**Figure 5:** Bogong High Plains, Alpine National Park

The Greater Alpine National Parks Management Plan (Parks Victoria 2016) defines five broad ecosystems for the management areas. Feral horse distribution occurs within four of the ecosystem types defined in the plan, including 'Alps', 'Dry Forests and Woodlands', 'Wet Forest and Rainforest', and 'Inland Waters and Wetlands'. Horse management is identified as a key strategy for the protection of each of these ecosystems (Parks Victoria 2016, pages 31–55).

Within the Greater Alpine National Parks Management Plan, each of the five ecosystems has defined goals and strategies. Feral horses are considered a high priority threat to the four noted ecosystems. Management of horses needs to target those areas that are damaged and are the most vulnerable, or are in good condition but have the potential to be impacted by the threat. This includes high-value natural assets such as the rare snow-patch communities with their specific plant associations and adapted to prolonged snow cover, as found in isolated areas of the Bogong High Plains.

## 4.2 Fauna and habitat dependency

Feral horses pose a threat to a variety of native fauna. They compete for resources with native herbivores and create a simplified habitat with fewer foraging, nesting and roosting opportunities for native animals, including water birds, small mammals, reptiles, frogs and invertebrates. Native species that utilise shallow aquatic and stream and river bank habitats, especially frogs and reptiles, are subject to additional pressures.

Two native species of mammal are potentially at risk from feral horse activity in the Victorian alps. Habitats of the Smoky Mouse (*Pseudomys fumeus*) and Broad-toothed Rat (*Mastocomys fuscus*) are currently suffering loss and degradation. Records show the Broad-tooth Rat has lived in the Australian alps for thousands of years, however through loss of alpine tussock grasslands and heaths the Broad-tooth Rat's status in these locations is now considered as vulnerable. The opening up of these grasslands makes the broad-tooth rat and other native species more vulnerable to predation by introduced predators such as feral cats and the European red fox.



**Figure 6:** Alpine Spiny Crayfish (*Euastacus crassus*)



**Figure 7:** Broad-tooth Rat (*Mastocomys fuscus*)

Horses and other ungulates (hoofed animals, all invasive) especially threaten reptile and frog habitat (impacts, Figures 11-14). The Southern Toadlet (*Pseudophryne dendyi*) occurs up to 1700m in elevation, breeds in shallow pools in wet heaths, bogs and fens, but is now becoming harder to locate. Likewise, the Alpine Tree Frog (*Litoria verreauxii alpina*), which occupies similar habitats, is critically endangered. Five reptiles (all skink species), including the Alpine Sheoak Skink (*Cyclodomorphus praealtus*) and Alpine Water Skink (*Eulamprus kosciuszko*), are listed as endangered. The Alpine Spiny Crayfish (*Euastacus crassus*) occupies cool, clear upland streams in alpine and sub-alpine regions. It also is listed



under the FFG Act as endangered. Additionally, highly restricted and threatened invertebrates such as the Alpine and Mount Stirling Stoneflies are also vulnerable to habitat impacts.

All these native species are habitat-dependent. Alpine wetlands, high-altitude treeless plains, alpine and montane woodland, and heathland are some of the vegetation communities where horses and dependent native species are in competition. Goals and strategies for protection of native fauna and associated habitats can be referenced in the Greater Alpine National Parks-Management Plan sections 4.1.2 – 4.1.5 inclusive.



**Figure 8:** Alpine Water Skink (*Eulamprus kosciuszko*)



**Figure 9:** Alpine Tree Frog (*Litoria verreauxii alpina*)

## 5 Heritage values

The First Peoples of Australia have connection to the Victorian alpine region dating back over many thousands of years. Areas occupied by horses can be rich in Aboriginal cultural values. Aboriginal cultural values may be both tangible (visible) and intangible (lore) and are a significant part of the Greater Alps parks. Following the 2003 Great Alpine Fire, large areas of bush that had previously proven difficult to penetrate for aboriginal cultural heritage surveys became accessible. An extensive site survey of locations was commissioned. The archaeological work teams found extensive tangible evidence at 350 new sites spread across fourteen alpine areas (J. Freslov et al. 2004).

Post-settlement cultural values including mining sites, stockyards and mountain huts are remnant evidence of the history of early European use of the Alps. Feral horses and perceptions of them in the natural environment can be linked to pioneer and grazing history. There are however divergent perspectives amongst the public around the historical values of horse presence in these parks versus impacts on the natural environment and wildlife.

### 5.1 Risks to Aboriginal cultural heritage values: Greater Alpine parks

Aboriginal people have lived in the high country of Victoria for tens of thousands of years. Physical evidence of occupation — 600 places and associated objects are recorded in Aboriginal Victoria's site registry — along with stories, language and memories that continue to link Aboriginal people to the alpine parks and lands.

Horses are known to occur in moderate to high densities in many locations where there are Aboriginal cultural sites. Most of these sites exist as part of the landscape and are managed in their original place. This means that the greater majority of these sites are not publicised, instead, protection from human intrusion comes from the confidentiality of the locations. Other threat management to these sites is based on control of the threat (management of large invasive species) rather than physical protection such as barriers or fencing.

Disturbance to Aboriginal cultural sites by horses has been observed and recorded. Feral horses can have adverse impacts at such sites, either by directly damaging culturally important attributes of the site, or by exposing them to damage through removal of vegetation and by disturbance of soil.

### 5.2 Post-settlement heritage value of horses

The heritage values connected to post-European settlement primary industry (mining, farming and grazing) on lands that are now national parks are considered important to some sections of the community. For some people, horses provide a living link to the pioneer and grazing history in the Alps and adjacent agricultural lands. For others, the feral horse is a threat to natural ecosystems.

Historical evidence of the presence of horses in the Australian alps is widely referenced. High country grazing played a key part in horses being turned free for agistment and then recaptured by stockmen. It is important that the values of the brumby and associated places, such as alpine cattlemen's huts, is known and shared through experience and information. It is acknowledged that the 'brumby' is part of Australian folklore.

This plan recognises that the history of the horse in these places is important to some members of the community and it is also recognised that some people do not support their removal, either in part or whole.

## 6 Known and potential impacts of feral horses

The impacts of wild horses on environmental values are wide ranging. 'Degradation and loss of habitats caused by feral horses' is listed as a potentially threatening process under the Flora and Fauna Guarantee Act. These impacts are outlined below.

### Grazing and browsing

Damage to vegetation communities (including threatened communities and species) through overgrazing and bark chewing is a common impact in medium to high-density horse areas (Figures 10-12, 16). Grasses, tussocks and heaths are preferentially grazed by horses, but they are also important habitat for threatened native animal species such as the Broad-toothed Rat and the Smoky Mouse.

### Pugging and streambank collapse

Pugging is deep soil/mud compaction caused by hooves (Figure 12). In wet areas where there are many horses, pugging is a commonly observed impact. It creates incisions that are microhabitats for weed invasion, and accelerates drying out and erosion. In bogs, peatlands and floodplains, streambank slumping and vegetation loss leads to waterway degradation and bank collapse as an eventual consequence of horse movements through these areas (Figure 11).



**Figure 10:** Horse exclusion plot and grazing impacts, Cowombat Flat, Alpine National Park



**Figure 11:** Streambank collapse, source of the Murray River, Alpine and Kosciuszko national parks



**Figure 12:** Pugging, Murray River, Cowombat Flat, Alpine National Park



## Water quality impacts

Feral horses impact water quality through streambed disturbance, pugging and streambank collapse. Horses may favour wetlands at certain times of the year because of the availability of the 'green pick' vegetation or the accessibility of stream bank vegetation not covered by winter snow. Removal of vegetation reduces water filtering. Water runs off more quickly heightening erosion potential and lowering overall water yield and water quality. Muddied waters impact alpine and riverine aquatic species including fishes, frogs, native spiny crayfish and the diverse invertebrates that support a wide range of native predators.

## Trackways

In areas of high horse density (e.g. the Eastern Alps) there is a significant increase in animal pathways through forest, heathland and alpine plains. Steep hillsides have a potential for increased erosion, and narrow valleys concentrate an increased collection of animals. Animals using these trackways can be vectors for weeds and plant and animal diseases, such as tree dieback fungus (*Phytophthora*) and frog chytrid fungus.



**Figure 13:** Suspended mud and poor water quality, Cowombat Flat, Alpine National Park



**Figure 14:** Siltation and damming of snow plain stream (protected area on right), Native Cat Flat, Alpine National Park



**Figure 15:** Horse trail, Bogong High Plains



**Figure 16:** Horse camp, Davies Plain, Alpine National Park

### Trampling and bare ground

Soils suffer compaction, loss of plant cover and loss of soil structure through trampling by horses. In peatlands, fens and other stream and riverbank systems, this leads to an increased susceptibility to erosion. Dust wallows (horses and deer) are much drier than surrounding vegetated soils. Greater evaporation and less aeration destabilises the soil and inhibits revegetation. Wallows are widened and deepened by frost heave, runoff and overuse (Figure 17).

Damage to indigenous cultural heritage sites can easily occur, particularly as the majority of these sites have no physical barriers to deter horses.

### Dung piles

Large piles of horse manure suppress vegetation. As well as suffocating native grasses and herbs on which it lies, the dung can act as an accessible surface fertiliser that assists non-native weed species to invade (Figure 14).

### Weeds

Horse presence and associated impacts can provide opportunity for a variety of introduced plant species to quickly outcompete native species. This is particularly true for the slower-growing Australian alpine and sub-alpine species. Horses also spread weeds through seeds in their dung and attached to their coats and tails.

### Native fauna competition

Australia's alpine and sub-alpine zones (above +1400m) make up less than 0.3% of the continent. In a warming climate native animal species that live within these zones have few migration opportunities to higher habitats. Additionally these habitats are occupied by horses or have the potential to be impacted by horses. Like animal populations on oceanic islands, native species in the 'alpine islands' have little chance of escape from current and impending threats.

The effect and impacts on native fauna can include increased competition for food and habitat damage. Horses outcompete grazers such as kangaroos and wallabies and can decrease plant species richness and abundance and cause reductions in ground-dwelling fauna. In areas where the larger macropods (kangaroos) should occur, such as low altitude open plains, horses appear to have caused displacement of the kangaroos.



**Figure 17:** Bare ground – dust wallow, Bogong High Plains, Alpine National Park



**Figure 18:** Dung pile and trap yard, Bogong High Plains, Alpine National Park



## Human interactions

For some visitors, horses provide a positive experience. The sighting of horses provides a visual reminder of the bygone days of pioneering life. This experience is promoted to visitors taking part in licensed private and commercial horse activities in parks. Parks Victoria supports recreational horse-riding, trail-riding, access for horseback camping, and licensed horseback tour operators within specified areas across Victoria's parks estate.

For others, contact with feral horses may be a negative experience. Horses can impact water quality through faecal contamination and sedimentation. This is particularly the case at popular camping areas and affects access to potable water. Other issues around horse presence on roadways and campsites have also been raised by park visitors. Some horses (e.g. a stallion protecting its mob from a perceived threat), have been known to intimidate visitors.

While some visitors seek or enjoy seeing horses in the Alpine National Park, the presence of feral horse can conflict with other visitors' expectations of a natural environment and the key attributes of national parks.



**Figure 19:** Horse-chewed sign, Alpine National Park



**Figure 20:** Feral horses with foals, Native Dog Flat



## 7 Conservation objectives and outcomes

The conservation objectives, and the associated outcomes of this plan span long and short-term timeframes. They are:

### Long-term conservation objectives:

- Reduce damage to alpine vegetation communities by expanding and improving feral horse control.
- Improve knowledge of the relationship between feral horse impacts and environmental condition through monitoring and research.
- Protect Aboriginal cultural heritage from damage by feral horses.
- Prevent the establishment of new populations of feral horses in the Alpine National Park, and in other parks and forests.
- Remove small populations of feral horses.

### Long-term outcomes (measurable over 3–10 years):

- Regeneration or recovery of alpine peatlands and streambanks.
- Improved distributions and abundances of vulnerable or threatened fauna species.
- Protection and rehabilitation of Aboriginal cultural sites and places.
- Reduction in existing horse populations, removal of small populations and no new populations of feral horses established.

### Medium-term outcomes (outcome measurable in 3 years):

- Reduction in pugging and streambank collapse caused by feral horses.
- Reduction in impacts from grazing on significant regenerating or restored vegetation.
- Collaborative partnerships and stronger relationships with Traditional Owners groups.
- Removal of Bogong High Plains-Cobungra feral horse populations, and management of potential reinvasions.
- Reduction in the Eastern Alps population by approximately 50% through removing up to 1200 horses from the Eastern Alps. Population contained and prevented from spreading.
- Increased community support for rehoming captured horses and horse management.

### Short-term outcomes (outcome measurable in 1–2 years):

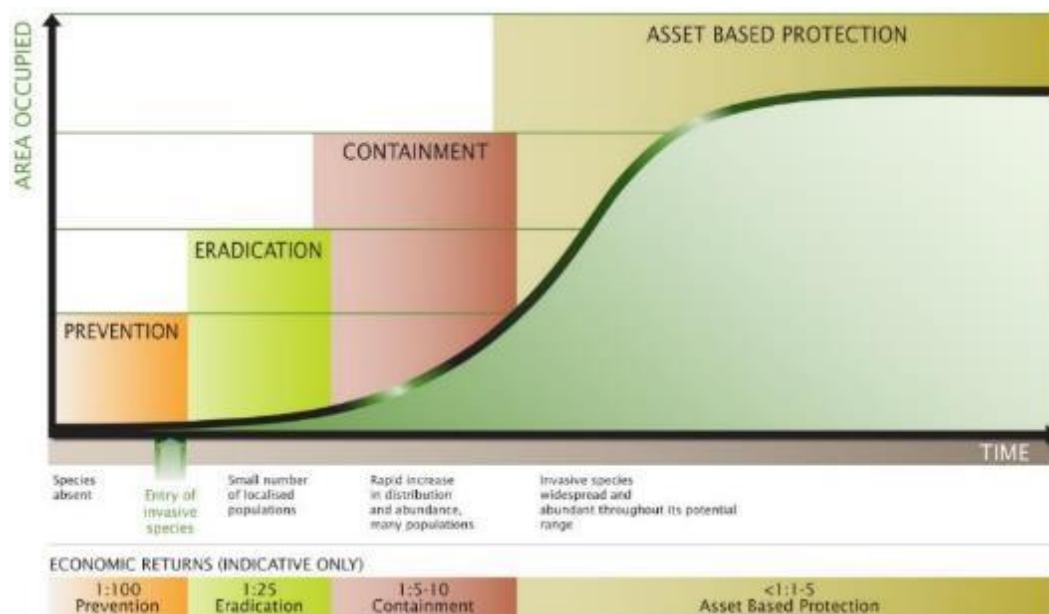
- Where required, protection of vulnerable biodiversity values in the greater alps (e.g. Mount Nelse snowpatch community) achieved through immediate removal of invading horses.
- Between 350 and 500 horses removed from the Eastern Alps.
- Horse management conducted safely and humanely.
- Ongoing removal of horses from the Bogong High Plains-Cobungra area.

## 8 Management approach

The Feral Horse Strategic Action Plan has been developed with input from key stakeholders and institutions that have an interest in horses and the environment. Experts in animal welfare, invasive species management, environment and social science, and feral horse control programs have provided additional knowledge. In addition to government staff involved in the management of the alpine parks and adjacent forests, key community groups have been consulted to develop an approach that ensures all viewpoints are considered. Two specific groups provided input to the development of this plan and may be engaged further during its implementation. Their roles are outlined below.

- **Alpine Horses Community Roundtable** — This group was established to gather views and expertise from key local interest groups, and where relevant broader input from environmental and horse stakeholder groups. The Alps Roundtable group provided opportunities for community representatives to present their views early in the planning process. Through January and February 2017, three roundtable meetings were facilitated. The views heard have been considered in the development of this plan.
- **Feral Horse Control Technical Reference Group** — This group provides advice to Parks Victoria on management approaches, targets and control strategies, and has provided a technical review of the action plan. Its members are independent (outside Parks Victoria) experts specialising in animal welfare, invasive species management, veterinary science, alpine ecology, Aboriginal cultural heritage, and social science. The advice of the group has been considered in development of this plan.

A principal in invasive species management throughout Australia, whether the target species be plant or animal, is the identification of the level of threat. Management objectives can be determined using a biosecurity approach that directs investment to prevention, eradication, containment and asset protection. This is a model approach advocated in Victoria's Invasive Plants and Animals Policy Framework (DEPI 2013 - Figure 21).



**Figure 21:** The generalised invasion curve showing objectives appropriate for each stage of invasion/establishment and the reduction seen in the economic returns of managing an invasive species as it becomes more widespread and established (DEPI 2013).

**Prevention** involves preventing an invasive species from establishing in an area and offers the most cost effective approach to managing the threat posed by a high risk invasive species.

**Eradication** involves removing every individual of the target species from an area and preventing re-colonisation. Eradication is generally only feasible for small isolated populations, often in the early stages of establishment.

**Containment** involves implementing measures to eradicate outlying (satellite) infestations and preventing spread beyond the boundaries of core infestations (those that are too large and well established to eradicate).

The **Asset protection** approach involves focussing the management of an invasive species towards areas where reducing its adverse effects provides the greatest benefits for protecting and restoring specific high value assets.

A combination of prevention, localised removal (eradication) of small populations where feasible, and asset protection will be used in feral horse management in the Greater Alpine national parks.

## 8.1 Abatement of current threats in the Victorian Alps

Feral horse control to reduce environmental damage and allow for restoration of alpine and subalpine ecosystems will principally be delivered using the control method of passive trapping. Rehoming of captured horses in cooperation with horse interest groups will be sought where horses are suitable for rehoming and are captured in areas where transport is safe and humane.

Passive trapping is considered by most stakeholders and community interest groups as the most humane control method. Roping and mustering are two other control measures which have potential but need further validation around humaneness, operational safety and cost. Roping has been a capture method used for the past decade, however its use has been suspended while an animal welfare review of the practice is undertaken. It will be reviewed through a series of monitored trials commencing in 2017. Advice will be received from the Technical Reference Group following their review of the results. Parks Victoria will then assess whether roping may be reintroduced as one of the plan's control methods. This plan identifies a trial for mustering as a possible but yet to be validated capture method.

Over an initial operations period of three years, management effort will be focused on reducing the impacts feral horses are having on vulnerable peatlands and streambanks. While small numbers of feral horses have been removed from the Alpine National Park over several years, an increased scale of removal is required. Where practical, sensitive ecological and cultural sites may have exclusion fencing constructed to prevent access by horses. However, fencing will not reduce horse numbers. It is an interim secondary management action to protect vulnerable sites.

In the Eastern Alps, feral horses are well established and are considered beyond eradication using currently available control tools. It is likely that populations will persist in this area (including the Alpine National Park, adjacent Victorian state forests and adjacent NSW alpine areas), even under increased management.



The management objective for the Eastern Alps will principally be Asset-based Protection. To ensure that the most at-risk environments can be protected and where possible allowed to recover from horse impacts, capture will be focused around seven key control areas in the Eastern Alps (Table 2).

An initial target of up to 1200 horses to be captured over three years has been established as an aspirational goal to both contain population growth and reduce abundance of feral horses. Population modelling identifies that a target of 400 animals removed from the Eastern Alps is needed to start reducing the population. A target of 200 animals per annum would keep the current population stable, including births and natural deaths. Based on current trapping rates for the Victorian alps this will mean a significant trapping increase of between 10-15 times the average over the period 2007-2017.

Following implementation of the initial three-year strategy, the extent of environmental protection delivered during that time will be reviewed based on whether horse impacts to peatlands and streambanks has been reduced to a level that can allow for recovery. Subject to this review, an adaptive approach may need to be applied. More horses may need to be removed to achieve a low residual population in the eastern Alps, and adequate protection of park values. This review will again explore all possible control options.

In accordance with the Greater Alpine National Parks Management Plan (Parks Victoria 2016), isolated populations of horses will be removed where feasible. The Bogong High Plains population presents this possibility. Reduction of this population to zero horses is the long-term management objective.

Horses are known to inhabit state forest to the south and south east of the Bogong High Plains in the Cobungra and Victoria river valleys. They can often be seen on the edges of the Great Alpine Road between Dinner Plain village and Omeo. Horses in this area will be managed to prevent re-invasion of the Bogong High Plains in cooperation with the Department of Environment, Land, Water and Planning.

### 8.1.1 Proposed control methods

**Table 1** provides an overview of the available control methods. Of these, Trapping is the principal activity to be used between 2017 and 2020 in the Alpine National Park, and where needed in adjacent State Forest, to reduce the abundance of feral horses.

**Table 1.** Overview of the control methods to be used in the Alpine National Park.

Description	Application
<b>Trapping</b>	
Trapping involves establishing trap yards and using lures such as salt, molasses and/or lucerne to encourage feral horses to go into the trap yards. Once inside the trap yard, a tripwire triggers the closure of the entry gate.	Trapping has been used with success in parts of the Victorian Alps, including the Bogong High Plains. The installation of a new and expanded trapping network in the Bogong High Plains-Cobungra area and in the Eastern Alps will increase the number of horses removed using this method. Trapping can be logistically challenging in remote areas due to the need to monitor traps and remove horses from trap yards in a timely manner. Where undertaken in more easily accessible areas, trapping can be a humane and effective control method for removing feral horses.
	Horses will be transported to holding locations and offered for rehoming by volunteer organisations where this can be done humanely.

Description	Application
	<p>Where remote trap locations are established and transporting horses from these areas is likely to be inhumane, or horses are not suitable for rehoming, horses will be culled humanely on-site.</p> <p><b>Will be used as the preferred primary control method.</b> Trapping will be used as the primary method to remove feral horses from all areas in the Alpine National Park area. In 2017–18 an expanded trapping network will be established. Detailed locations for traps will be determined during planning prior to operational implementation.</p>
<p><b>Mustering</b></p> <p>Mustering involves using horse riders, ground vehicles or helicopters, or a combination of these, to gather and move groups of feral horses into a yard.</p>	<p>Mustering has not been used for controlling feral horses in the Victorian Alps. Mustering operations are best suited to open and relatively flat terrain and would not be feasible in the many parts of the Victorian Alps that are dominated by rugged or forested terrain. However, there are some locations where mustering could be a practical, effective and humane method for removing feral horses.</p> <p>Horses that are suitable for rehoming will be transported to holding locations and offered for rehoming where this can be done humanely. Where transport of horses from these areas is likely to be inhumane, or horses are not suitable for rehoming, horses will be culled humanely on-site.</p> <p><b>Mustering to be trialled as a secondary control method.</b> Mustering may be trialled as a feral horse control technique during the term of this Plan, where the terrain allows safe and humane operations.</p>
<p><b>Roping</b></p> <p>Roping (also called brumby running) involves skilled horse riders chasing targeted feral horses on horseback and capturing them using a rope/halter.</p>	<p>Roping has been used in accordance with operating procedures to remove feral horses in the Victorian Alps for many years and is a useful approach where poor access precludes trapping. Historically, Roping has been used to remove more horses than trapping. Some people see roping as a traditional activity that has important cultural significance.</p> <p>Roped horses will be transported to holding locations and offered for rehoming where this can be done humanely.</p> <p>There are opposing views regarding the humaneness of roping. Due to this, this technique requires monitoring and evaluation through field-based trials. An independent review of roping is currently being developed.</p> <p><b>Roping will be suspended as a capture method while scientifically evaluated.</b> To date, more feral horses have been removed using roping than with any other technique. Roping will be independently monitored and evaluated for its humaneness, efficacy and cost effectiveness. Further use of the technique will be based on an expert review of the monitoring results after this review.</p> <p>If deemed to be an acceptable humane practice and if it is possible to deliver this technique humanely, roping may be resumed in the Eastern Alps.</p> <p>If practices do not meet sufficient animal welfare standards, roping will be discontinued as a horse control management technique.</p>

## Description

## Application

### Fencing

Fencing (exclusion zones) involves the strategic placement of fences to prevent feral horses from accessing fragile/sensitive areas.

Fences have been used effectively to demonstrate the damage feral horses can do to sensitive high plains areas in the Eastern Alps. In areas where feral horses are unlikely to be totally removed, such as the Eastern Alps, fencing can help to provide experimental 'feral horse free areas' that can assist land managers and researchers to develop a more detailed understanding of how to restore horse damaged areas in the Alps.

Many peatlands in the Eastern Alps have been heavily damaged by feral horses, and restoration of these areas may take many decades even where the abundance of horses is reduced. Exclusion of feral horses in some key areas will allow monitoring and restoration of representative areas.

Fencing is expensive to establish and maintain in remote areas, but may be a feasible option to meet research and restoration needs.

**Research opportunity and site-specific protection:** In 2017–18 the establishment of at least two experimental restoration areas will be considered. Existing exclusion areas in the Eastern Alps may be expanded to achieve this goal. Some areas on the Bogong High Plains may be protected using fencing.

### Fertility control

Fertility control agents can be used to manage reproduction rates of individual horses if the agent can be administered effectively and individual horses can be identified and re-treated when required. This technique has been used overseas and is generally only practical in small confined populations where an immediate reduction of environmental impacts is not required.

**Will not be used.** Due to the large population sizes, difficulty in delivering the control agent effectively in the field for large numbers of uncontained and unidentified animals, and the inability for the technique to reduce populations immediately (over a short period), fertility control is not currently being considered for horse control in Victorian parks (see Feral Horse Technical Reference Group – Control techniques issues summary 2017).

### Shooting

Ground and aerial shooting can provide specific and humane ways of managing feral animals, using appropriately skilled shooters under suitable conditions.

In inaccessible remote areas where trapping, roping and mustering are not likely to be humane, ground or aerial shooting (or both) may be the most feasible and humane approach.

Ground or aerial shooting has not been used to remove free ranging feral horses by public land managers in Victoria due to public perceptions and preference for passive techniques such as trapping.

**Will not be used to control free ranging feral horses.** In year 3 of this plan an evaluation of trapping and other capture methods will occur. If results demonstrate that the use of additional techniques may be required to achieve adequate protection of the environment from horses, further public consultation on techniques such as shooting of free animals will be undertaken.



## 8.1.2 Management actions for the removal of horses in the Alps

### Eastern Alps

1. Establish and maintain an ongoing trapping network at high conservation value areas in the Eastern Alps
2. To provide field-based evidence, roping will only be used as an independently monitored trial. It will then be evaluated for its humaneness, efficacy and cost effectiveness. Further use of the technique will be based on expert review of the monitoring results.
3. Subject to sufficient safeguards and protocols, a mustering trial may be undertaken in state forest at Nunniong Plains in collaboration with DELWP, or other suitable east alps locations in the Alpine National Park.
4. Remove up to 1200 horses over the three years of this plan.

### Bogong High Plains – Cobungra area

1. Establish and maintain an expanded trapping network in the Bogong High Plains-Cobungra area.
2. Remove Bogong High Plains-Cobungra horse populations. Due to the vast terrain and reliance on trapping, horses may persist in low numbers in the Bogong unit through potential re-invasion from adjacent crown lands, possible illegal release and/or escape of horses into the park.
3. Deliver an ongoing horse removal program to limit the persistence and reinvasion of horses.

## 8.1.3 Management of captured horses

Maximising the chances for captured horses to be rehomed and minimising poor welfare outcomes are key considerations in the delivery of control programs. Prior to the trapping or transport of any horse, assessments will be made to validate the ability of brumby rehoming groups to take the captured animal. To achieve this, the following principles will be applied to the management of captured horses.

1. Minimise transport and holding times for captured horses prior to transport.
2. Where assessed as potentially suitable for rehoming, captured horses that can be transported humanely will be made available for rehoming by appropriately skilled brumby rehoming groups. A horse once received by the relevant brumby group or person becomes the property of that group or person.
3. If transport conditions and distances are likely to result in poor welfare outcomes for horses, or horses are found to be in poor health or otherwise unsuitable for rehoming (or unable to be rehomed), horses may be culled humanely at the capture site. Where possible, carcasses of horses will be removed from capture sites and disposed of appropriately (possibly by burial).

### 8.1.4 Location-based control and removal methods

**Table 2.** Where and how horses will be managed.

Control location	Management objective	Priority	Management approach	
			Capture	Removal
Areas not currently occupied by wild horses	Prevention	1	In the event of a new feral horse incursion, horses will be removed using trapping or other methods appropriate to the area.	Captured horses will be offered for rehoming if safe and humane transport is possible.
Bogong High Plains	Remove horses. Limit potential re-invasions into Bogong High Plains.	2	Trapping.	Captured horses will be offered for rehoming if safe and humane transport is possible.
Cobungra populations	Removal/Containment. Prevent spread back into BHP.	3	Trapping	Captured horses will be offered for rehoming if safe and humane transport is possible.
Eastern Alps populations (see sub population descriptions below)	Asset Protection	3	Trapping, supplemented by mustering in suitable locations.	Captured horses will be offered for rehoming if safe and humane transport is possible.
Eastern Alps: Davies Plain	Asset protection through reduced horse abundance.	3	Trapping, supplemented by mustering in suitable locations.	Captured horses will be offered for rehoming if safe and humane transport is possible.
Eastern Alps: Nunniong (State Forest)	Asset protection through reduced horse abundance.	3	The open, relatively flat terrain of the Nunniong area and good access make it a suitable location for an initial mustering trial. Trapping will also be used.	Captured horses will be offered for rehoming if safe and humane transport is possible.
Eastern Alps: Limestone	Asset protection through reduced horse abundance.	3	Trapping, potentially supplemented by mustering in suitable locations.	Captured horses will be offered for rehoming if safe and humane transport is possible.
Eastern Alps: Buchan Headwaters/Upper Tambo	Asset protection through reduced horse abundance.	3	Trapping, potentially supplemented by mustering in suitable locations.	Captured horses will be offered for rehoming if safe and humane transport is possible.

Control location	Management objective	Priority	Management approach	
			Capture	Removal
Eastern Alps: Buenba/Mount Murphy	Asset protection through reduced horse abundance.	3	Trapping, potentially supplemented by mustering in suitable locations.	Captured horses will be offered for rehoming if safe and humane transport is possible.
Eastern Alps: Mount Misery	Asset protection through reduced horse abundance.	3	Trapping, potentially supplemented by mustering in suitable locations.	Captured horses will be offered for rehoming if safe and humane transport is possible.
Cowombat Flat - source of the Murray river.	Asset protection through reduced horse abundance.	3	Trapping, potentially supplemented by mustering in suitable locations.	Captured horses will be offered for rehoming if safe and humane transport is possible.

## 8.2 Stakeholder and community engagement

### 8.2.1 Consultation and social objectives

Community engagement has been underway since 2012–2013. This involved community-based advisory groups, interviews with key peak and regional interest groups, a Victorian community perception survey, and the release of information sheets and background papers.

Objectives for stakeholder and community engagement in implementing the feral horse action plan are to:

- Work closely with Traditional Owners to protect Country and sites of cultural significance.
- Enable partnerships that contribute to the effectiveness of feral horse management
- Ensure key stakeholders are given the opportunity to contribute to the delivery and evaluation of the Action Plan.
- Keep the community and stakeholders informed of actions and progress.

### 8.2.2 Key stakeholders and partners

Parks Victoria recognises that partnerships with Traditional Owners, other agencies, pro-horse groups and the community can help achieve common goals far beyond that possible through delivery by Parks Victoria alone.

#### Actions:

- Support partnerships with Traditional Owners, agencies and groups (including community groups and volunteers) in managing or monitoring feral horses and their occupied areas within the landscape.
- Support partnerships with groups that can provide capacity to maximise the rehoming of feral horses.



- Build understanding and acceptance around the need for the removal of horses from these areas, and the control methods to be employed.
- Build awareness around the need for landscape restoration.

### 8.2.3 Communications

There is a need for transparency in the management of feral horses. Communications will be provided to ensure that the community are pro-actively informed on progress of conservation objectives.

Key stakeholders will be informed of outcomes from the annual reviews. Management approaches will be adapted according to results of the reviews and feedback from community, researchers and technical experts.

#### Actions:

- The community and stakeholders are informed of actions and progress.
- Scientific evidence supporting the need for the management approach is shared with key stakeholders and communities.
- Maintain open and responsive communication lines with stakeholders



**Figure 22:** Horses on roadway, Native Cat Flat, Alpine National Park

## 9 Monitoring, evaluation and research

### 9.1 Monitoring and evaluation

Parks Victoria is committed to an evidence-based approach to the management of natural and cultural values. Monitoring and evaluation are fundamental to that approach, helping to ensure that decisions are based on the best information available and that the effectiveness of management improves over time as knowledge increases. Monitoring provides the information necessary for evaluating how successful management has been, as well as identifying where changes in the management approach or resourcing are needed. The feral horse management program will include four levels of monitoring:

**Input** — time, money and other resources invested in implementing management activities. This helps an understanding of the efficiency of management and informs resource needs for future management.

**Output** — management actions undertaken (what, where, when and how much). It is important to understand what actions were undertaken so that the effectiveness of management can be interpreted in reducing the horse population and enhancing natural and cultural values.

**Threat** — the status of threats to natural values. In this case, threat monitoring will target horse populations but also review other invasive animal species in order to correlate attributable impacts. Changes in the size of feral horse populations will generally be more rapid than changes in the status of natural and cultural values. New populations will be controlled through full removal. Monitoring horse populations provides short-term feedback on the effectiveness of management, indicating whether desired longer-term outcomes are likely to be met.

**Conservation outcomes** — the condition of natural and cultural values we seek to protect through managing feral horse populations. This is the fundamental test of the effectiveness of management, telling us whether longer-term conservation goals are being achieved.

Because the feral horse management program will follow an adaptive management approach, management techniques and goals will evolve over time as we learn more. Consequently, monitoring needs will also change over time to enable the evaluation and improvement of management effectiveness and to better inform decision-making.

### 9.2 Input monitoring

To ensure an understanding of the efficiency of any management undertaken, and to help plan for future management, it is important to document the costs of implementing the program.

#### Actions:

- Parks Victoria will maintain records of budget expenditure, staff, contractor and volunteer time, materials and other resources used to implement all activities associated with the management of feral horses in the Alpine National Park.

### 9.3 Activity monitoring

As well as documenting costs associated with the management program, it is important to document activities undertaken to manage feral horses. What was done, where and when it was done and how much was done must be known so that any changes in horse populations and in natural and cultural values can be related to work undertaken to control horses. This helps understand how well different management actions worked, where further effort is needed and where changes in approach are required.

#### Actions:

- Parks Victoria will monitor the effort and maintain records of the number of horses removed using each control method.

## 9.4 Feral horse monitoring

### 9.4.1 Estimating horse abundance across the landscape

Changes in the abundance of horses caused by removal needs to be monitored, and the associated reductions and impacts understood to determine the effectiveness of further control. This in turn is critical for determining the level of management effort needed to successfully achieve population reduction targets with subsequent control activities.

Effective horse monitoring programs using helicopter or fixed-wing aircraft surveys have been established for the Eastern Alps and Bogong High Plains populations. These programs will be continued, and where necessary will be reviewed and revised as knowledge of horses in both locations improves. Specifically, there may be need to expand the survey area for the Bogong High Plains population. Recent observations suggest this population may now occur in areas not believed to be occupied by feral horses when this monitoring program was established. As such, there may be a need to expand the survey area in future years to encompass all areas where feral horses occur.

#### Actions:

- Continue to monitor the Eastern Alps feral horse populations every five years or as required using the methods applied in the aerial 2014 survey.
- Review the appropriateness of the survey area for the Bogong High Plains population.
- Modify survey designs as appropriate based on this review.
- Implement current or modified survey of the Bogong High Plains population every two years or as required.

### 9.4.2 Estimating local horse abundance

There is a need to understand what is happening to the feral horse population at a localised scale in the areas where management actions such as trapping are applied. This is important for determining whether the local population is reduced following management action, as well as understanding whether that reduction is maintained. A current project being undertaken by researchers at the University of Tasmania is seeking to develop an effective approach for localised monitoring of horse abundance in the alps. Subject to the results of this research, monitoring of local horse populations should be undertaken in at least some areas where management actions occur.

#### Actions:

- Progress development of an effective approach for localised monitoring of horse abundance.
- Implement localised monitoring of horse abundance in selected areas.

### 9.4.3 Animal welfare

Monitoring of animal welfare associated with all aspects of the feral horse control program including capture, handling, transport, and where necessary, destruction or culling of animals is an integral component of implementing the program. The reporting of rehoming activities will be undertaken, including data showing the number of horses rehomed, sold and/or transported to a knackery.

Management to date of the Eastern Alps population has included roping (brumby running) and trapping, undertaken through a contractual arrangement with the Alpine Brumby Management Association in accordance with specific operating guidelines and conditions. Questions exist regarding the humaneness of roping, community capacity to absorb large numbers of horses, and cost-



effectiveness of this approach. Hence, its continued use is subject to a review by technical experts of the animal welfare outcomes associated with this approach in year one of the plan.

**Actions:**

- Develop and implement a monitoring protocol to ensure compliance with national codes of practice and standard operating procedures, so that the welfare considerations of horse removal are known, monitored and documented.
- Establish a specific monitoring program to evaluate the appropriateness of roping as a management technique. Review and assessment of the continued use of this technique will be undertaken by technical experts in year one of the management program.

## 9.5 Natural and cultural values monitoring

Management of feral horses is being undertaken to protect natural and cultural values of the Alpine National Park. Hence, assessment of the effectiveness of management must consider outcomes for both natural and cultural values.

### 9.5.1 Natural values

Although a wide range of natural assets in the Eastern Alps and Bogong areas are affected adversely by feral horses, the initial phase of the management program is focused on the protection of peatlands and streambanks. Monitoring will be implemented to determine the status of these natural values and how they change over time in association with any management implemented. Where possible, we will seek to utilise or complement existing monitoring programs.

In the alps, monitoring will focus on attributes of peatlands and streambanks that are known to be impacted by feral horses. The specific methods are yet to be developed, but may draw on relevant elements of established monitoring programs. This may include:

- The alps-wide peatland condition monitoring program.
- Attributes of stream condition considered in the alps-wide assessment of feral horse impacts undertaken by the Australian Alps Liaison Committee (AALC).
- Streambank elements monitored inside and outside existing horse exclusion plots established at Native Cat and Cowombat flats in the Alpine National Park.

Additional exclusion plots (areas fenced to exclude horses) may also be established to determine how peatlands and streams recover when they cannot be accessed by horses.

**Actions:**

- Develop and implement monitoring to determine the status of peatlands in the Eastern Alps and Bogong areas and how this changes over time in relation to management effort.
- Develop and implement monitoring to determine the status of streambanks in the Eastern Alps and Bogong areas and how this changes over time in relation to management effort.

### 9.5.2 Cultural values

The Victorian Alps have a rich cultural heritage that is important to Traditional Owners and the broader Victorian community. Heritage values include the physical as well as intangible attributes of the landscape, both of which may be damaged by feral horses. Protection of Traditional Owner cultural values in the Alpine National Park is a focus of the initial phase of the feral horse management program.

Culturally important sites such as middens, artefact scatters and burial sites are sensitive to disturbance. Monitoring will be established to understand the status of culturally important sites and how this changes over time in association with management actions.

The Greater Alpine National Parks Management Plan notes sites of post-European settlement where the presence of horses have been significant e.g. huts and yards. These sites also require management protection.

**Actions:**

- Work with Traditional Owners to develop and implement monitoring of the status of culturally-important sites and how this changes over time in association with management actions.

## 9.6 Research to address priority knowledge gaps

The feral horse management program will include a research stream to address priority knowledge gaps, reducing uncertainty and further enhancing the effectiveness of management over time. The focus of the research program will evolve over time as knowledge regarding the management of feral horses and their impacts improves.

In the short term, important areas of research will include:

- Developing an effective technique for localised estimation of feral horse abundance (see 9.4.2).
- Evaluating the humaneness and cost-effectiveness of roping (see 9.4.3).
- Exploring the use of remotely piloted aircraft systems (drones) and remotely captured imagery for gathering data to assessing feral horse abundance, and stream, vegetation and habitat condition. (AALC project 2016-2018).

Further areas of research may include:

- Demography of feral horse populations.
- Habitat use and movement of horses across the landscape.



**Figure 23:** Mount Feathertop from the Razorback

## 10 Reporting and review

Feral horse management will be delivered in two principal components:

1. An operational component to deliver the capture and removal of feral horses from the Victorian Alps, undertaken as seasonal conditions, access and weather allows.
2. A monitoring and evaluation component to determine current estimates of horse density, and to determine removal targets based on pre-determined target densities and the achievement of conservation and welfare outcomes.

Reporting on the operational component will be included in Parks Victoria's Eastern Region seasonal and end-of-year reports. Contractors and groups receiving captured horses will also be required to provide necessary data regarding age/condition, capture, rehoming and other chain-of-custody outcomes.

Monitoring and other research projects will run concurrently with operational activities.

To provide technical advice on these two principal horse management components, the existing Feral Horse Technical Reference Group will remain in place and will be asked to provide advice on progress in implementing these components. The Technical Reference Group will continue to provide review and further guidance for at least the first year of operation.

This plan will be reviewed and evaluated each year following its commencement in 2017–18. There will also be a formal review and evaluation of the plan, involving engagement with key stakeholders after three years. Reports on the reviews and associated outcomes will be made available via the Parks Victoria website.



**Figure 24:** Fenced vegetation plot, Bogong High Plains, Alpine National Park



## 11 References

Australian Alps Liaison Committee 2016, *Australian Alps factsheet: Wild horse management*, Australian Alps National Parks Cooperative Management Program.

Australian Alps Liaison Committee 2014, *Developing an applied research program for wild horse management*, Workshop proceedings, Australian Alps national parks Cooperative Management Program.

Cairns S, Robertson G 2015, *A report on the 2014 survey of feral horses (Equus ferus caballus) in the Australian Alps*, Report to the Australian Alps Liaison Committee by GE & SC Cairns Consulting: Armidale, NSW.

Carboon J, Piggot P, Wehner B 2012, *Barmah National Park draft horse survey report*, Parks Victoria: Melbourne.

Context 2015, *National cultural heritage values assessment and conflicting values report: The wild horse population, Kosciuszko National Park*, Report to NSW National Parks and Wildlife Service by Context: Brunswick, Victoria.

Context 2014, *Wild horses in the Barmah NP: An exploration of community heritage values*, Report prepared for Parks Victoria by Context: Brunswick, Victoria.

Dawson, M 2009, *Aerial survey of feral horses in the Australian Alps*, Report prepared for the Australian Alps Liaison Committee, Australian Alps national parks Cooperative Management Program.

Dawson M, Axford J, 2011, *The ecology of feral horses and their environmental impact in the Victorian Alps, Background Paper 1*, Parks Victoria: Melbourne.

Dawson M 2005, *Bogong High Plains horse survey: Final report*, Report prepared for Parks Victoria by M. Dawson.

Department of Environment and Primary Industry, 2012, *Invasive Plants and Animals Policy Framework*, Victoria.

Dyring J 1990, *The impact of feral horses (Equus caballus) on sub-alpine and montane environments*, MAppSc thesis, University of Canberra: Canberra.

Feral Horse Technical Reference Group 2017, *Control techniques – Issues summary*. Feral Horse Technical Reference Group 2017, Parks Victoria: Melbourne.

Freslov J, Mullet R, Hughes P, Kelly T, Johnson D, Shawcross W, Hunt P, Williams D, McGregor O, Collins S, Wines D, Zipfer C 2004, *Post Wildfire Indigenous Heritage Survey, Vol.1*, a report prepared for Parks Victoria and Department of Sustainability and Environment, AAV Report No.2833

ITRG 2016, *Final report of the Independent Technical Reference Group: Supplementary to the Kosciuszko National Park Wild Horse Management Plan*, Report by the Independent Technical Reference Group to the NSW Office of Environment and Heritage: Sydney.

Office of Environment and Heritage, 2015, *Assessing the humaneness of wild horse management methods, Kosciuszko National Park Wild Horse Management Plan*, NSW Office of Environment & Heritage: Sydney.

Office of Environment and Heritage, 2016, *Draft Wild Horse Management Plan Kosciuszko National Park*, NSW National Parks and Wildlife Service: Sydney.

Parkes JP, Latham ADM, Forsyth DM, Stamation K, Latham MC, Cowan P, Fahey B 2017, *Framework for managing introduced large herbivores on Parks Victoria estate*, A report to Parks Victoria by The Arthur Rylah Institute for Environmental Research, Department of Environment, Land, Water and Planning: Heidelberg, Victoria.

Parks Victoria 2013, *Operating guidelines for feral horse capture by roping*, Parks Victoria: Melbourne.

Parks Victoria 2016, *Greater Alpine National Parks Management Plan*, Parks Victoria: Melbourne.

Robertson G, Wright J, Brown D, Yuen K, Tongway D 2015, *An Assessment of Feral Horse Impacts on Treeless Drainage Lines in the Australian Alps*, a report prepared for the Australian Alps Liaison Committee, Australian Alps National Parks Cooperative Management Program.

Scientific Advisory Committee 2011, *Final Recommendation on a nomination for listing – Degradation and loss of habitats caused by feral horses (Equus caballus)*, Department of Environment & Primary Industries: Melbourne.

The Primary Agency 2016, *Stakeholder feedback regarding wild horse management in Barmah National Park and Greater Alpine National Parks*, A report to Parks Victoria by The Primary Agency: East Melbourne.

Tolsma, A 2008(b) *An Assessment of the Management needs of Mossbeds in the Victorian Alps, 2004-2008*. Report to Parks Victoria, Arthur Rylah Institute for Environmental Research, Melbourne

Walter M 2003, *The population ecology of wild horses in the Australian Alps*, Report to the Australian Alps Liaison Committee, Australian Alps National Parks Cooperative Management Program.

## 12 Maps



# Bogong - Cobungra Area

