



ACT
Government

NAMADGI NATIONAL PARK FERAL HORSE MANAGEMENT PLAN

SEPTEMBER 2020



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Cover image

Feral horses and stream bank damage on Chance Creek, Kosciuszko NP in 2015 (NSW Government)

Acknowledgement of Country

The ACT Government acknowledges Ngunnawal people as the Traditional Custodians of the ACT, and honours the cultural legacy of their ancestors and the ongoing responsibility they still carry in managing Country today. The region was also a significant meeting place for neighbouring language and clan groups who came for ceremonies, trade, seasonal resources, exchange of knowledge and to maintain spiritual, social and environmental connectivity between traditional caretakers. For thousands of years the Ngunnawal people have maintained a tangible and intangible cultural, social, environmental, spiritual and economic connection to these lands and waters. We pay our respects to elders past, present and emerging, and their continued connection to Country.

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CONTENTS

1. INTRODUCTION.....	1	5. MONITORING AND ASSESSMENT OF FERAL HORSE MANAGEMENT IN NAMADGI NATIONAL PARK	27
2. FERAL HORSES	3	REFERENCES.....	29
2.1 Social organisation, biology and ecology.....	3	APPENDIX 1.	35
2.2 Environmental impacts	3	Box 1. Recovery following removal of feral horses in 1987	6
3. FERAL HORSES IN NAMADGI NATIONAL PARK AND THE SURROUNDING REGION	5	Box 2. A visual comparison of an undisturbed bog and a bog subject to disturbance by feral horses.....	13
3.1 Historical distribution and control activities in Namadgi National Park	5	Figure 1: Distribution of feral horses in NSW (as of 2016)	9
3.2 Feral horses in the region	7	Figure 2: Modelled feral horse distribution over a ten year period	11
3.3 The threat to Namadgi National Park.....	11	Figure 3: Habitat potentially suitable for feral horses in Namadgi NP.....	12
3.4 Natural and cultural values of Namadgi National Park.....	14	Table 1. Flora and fauna species threatened in the ACT and located in Namadgi.....	17
3.5 Methods for control of feral horses.....	19		
4. NAMADGI NATIONAL PARK HORSE MANAGEMENT STRATEGY	23		
4.1 Management goal	23		
4.2 Management objectives	23		
4.3 Management Strategies	23		
4.4 Methods for control	24		
4.5 Relevant policy and legislation	25		
4.6 Community and stakeholder consultation	25		



1. INTRODUCTION

Namadgi National Park (NP) covers 106,095 hectares, approximately 45% of the Australian Capital Territory (ACT). The Park is located at the northern end of the Australian Alps network of national parks, which is recognised for its unique natural and cultural values and is included in Australia's National Heritage list. The National Heritage list is Australia's list of natural, historic and Indigenous places of outstanding heritage value to the nation.

Namadgi NP contains habitat for several threatened species and threatened ecological communities. It also includes the headwaters of the Cotter River, which provides an important source of water for the Canberra and Queanbeyan communities, and contains many subalpine wetlands that have regional, national and international significance.

The ACT Government in partnership with the community is responsible for protecting the values of Namadgi NP. The Namadgi National Park Plan of Management (hereafter Namadgi PoM) outlines the natural, cultural and social values of the Park, as well as threats to these values and associated management objectives to maintain and enhance them. Importantly, the Namadgi PoM includes the following objective to protect water quality:

- The ecological and hydrological condition of water catchments is maintained and, where desirable and feasible, improved, to ensure a continuing high quality and cost-effective water supply for the ACT

Managing pest animals, including mitigating the impacts of feral horses, is one essential way to achieve this. It is also central to achieving the Namadgi PoM's objective to:

- Reduce and control pest animal numbers and, where feasible, eradicate pest animals from the park through the implementation of control programs that are integrated with landscape and biodiversity conservation and ecological restoration objectives (ACT Government 2010)

Research across Australia (and abroad) demonstrates that feral horses can have devastating impacts on sensitive vegetation, native fauna species, and the hydrology of bogs and other water systems. To mitigate these risks, the ACT Government is committed to maintaining a 'zero-tolerance' policy on the presence of feral horses in Namadgi NP.

Horses inhabit a wide range of ecosystems across Australia, including high and low altitude grasslands, forests, deserts and ocean shores. In the broader ACT region, most feral horses occur in subalpine national parks of the Australian Alps. Horses first established wild populations in the ACT in the 1800s and their numbers have fluctuated since.

The first plan to manage feral horses in Namadgi NP was prepared in 2004. A combination of management techniques (including barrier fencing, trapping and removal, and humane destruction, or ground-based shooting) were trialled under this Plan.

A revised version of this Plan was released in 2007, which, consistent with the 2004 Plan, aimed to 'prevent the re-establishment of feral horse populations within Namadgi NP, specifically relating to the potential for these animals to cause undesirable impacts to sub-alpine wetlands' (ACT Government 2007). Since the release of the 2007 plan, 24 horses have been trapped and humanely destroyed in Namadgi NP. There are no resident populations of feral horses in Namadgi NP today.

This Plan is a revision and update of the 2007 Namadgi National Park Feral Horse Management Plan. It is informed by the successes of previous ACT horse management plans, feral horse management in the region, the ACT Vertebrate Pest Management Strategy (ACT Government 2012), and relevant national codes of practice (COP) and standard operating procedures (SOPs) for managing pests.

This Plan outlines:

- » feral horse biology and ecology
- » the history of horses in Namadgi NP and their current distribution and impacts in the region
- » the outcomes of feral horse management since the release of the 2007 Management Plan
- » the natural, cultural and water values of Namadgi NP at risk from feral horses
- » the future goals and objectives of managing feral horse impacts in Namadgi NP
- » legislation and policy relevant to managing feral horses in Namadgi NP.

While a formal review of this Plan is not required under ACT legislation, it is critical that the Plan remains relevant and up to date. This Plan will be updated to include new information that can inform control activities within the ACT (e.g. from research findings or experience in other jurisdictions) and if there are significant changes in the abundance and distribution of feral horses in the region. It is anticipated that a full review of the Plan will be undertaken within ten years.



2. FERAL HORSES

2.1 SOCIAL ORGANISATION, BIOLOGY AND ECOLOGY

Feral horses form two main societal groups: harems and bachelor groups. Typically, harems are small breeding groups that contain a dominant stallion (or occasionally several) and three or more mares and their foals. Breeding stallions can be replaced in a group but mares form the stable, long-term centre of harems (Van Dierendonck & Goodwin 2005). Harems generally occupy a well-defined, small geographic area, often surrounding a permanent water source (Dobbie et al. 1993; Csurhes et al. 2016). Young and old stallions that have been overthrown from harems or have lost their group often congregate in less stable, mobile bachelor groups that occupy larger areas (Dobbie et al. 1993; Van Dierendonck & Goodwin 2005).

Feral horses are estimated to have home ranges between 9.76km² and 32km² (Csurhes et al. 2016; NSW Government 2016a), but this varies both within and between populations (Linklater 2000). The average size of harem and bachelor groups in the Australian Alps is between 5 and 6 individuals (Walter & Hone 2003); recent survey results indicate the current maximum group size is 28 (Cairns 2019).

Horse mortality is highest in the first year of life and generally declines with age (Dobbie et al. 1993; Linklater et al. 2004).

The life expectancy of wild horses is less than domestic horses, which can live for more than 30 years. However, due to an abundance of water and food (even in times of drought), and lack of predators, feral horses in the region are likely to have longer life spans than most wild horses in Australia (NSW Government 2016a).

Without human intervention, horse populations most commonly increase by approximately 20% every year (Garrott et al. 1991; Australian Government 2011). Depending on environmental conditions and available resources, populations of feral horses can increase at rates above 30% in a single year (Grange et al. 2009; Scorolli & Cazorla 2010; Cairns 2019). Data from aerial surveys undertaken across the Australian Alps estimate that between 2014 and 2019 the feral horse population increased annually by approximately 23% (Cairns 2019).

The peak breeding season for horses is spring and summer. Mares reach puberty between 12 and 24 months of age (Dobbie et al. 1993) but in many cases will not produce young before the age of three years (Linklater et al. 2004; Dawson & Hone 2012). Although capable of breeding successfully every year, mares commonly raise one foal every two years (Dobbie et al. 1993).

2.2 ENVIRONMENTAL IMPACTS

A meta-analysis undertaken by Eldridge et al. (2020) identified the negative effects of feral horses on ecosystem structure, function and composition across the globe. In Australia, the impacts of feral horses were considered as early as the 1950s (see Costin 1954; Costin 1957) and research investigating their impacts was first undertaken in Central Australia in the 1980s (see Berman & Jarman 1988) and in the Australian highlands in the 1990s (see Dyring 1990). Since this time, considerable research has been undertaken to better understand the impacts of feral horses in the Alps region (see Section 3.2).

Similarly to other non-native herbivores, horses can cause significant environmental damage primarily via herbivory and the degradation of habitats, including trampling vegetation, contributing to soil erosion and compaction, and impacting the function and integrity of water bodies (see section 3.2 and also: Rogers 1991; Taylor 1995; Beever & Brussard 2000; Campbell & Gibson 2001; Beever & Herrick 2006). Unsurprisingly, these impacts can have flow-on effects on native wildlife (Beever & Brussard 2004; Zalba & Cozzani 2004; Ward-Fear et al. 2017).



3. FERAL HORSES IN NAMADGI NATIONAL PARK AND THE SURROUNDING REGION

3.1 HISTORICAL DISTRIBUTION AND CONTROL ACTIVITIES IN NAMADGI NATIONAL PARK

The population of feral horses within the ACT has varied in response to both natural events and control measures. It is likely that feral horses first established in the area that is now Namadgi NP from animals escaping from Brindabella Station, Yaouk, Tidbinbilla property and the Cotter Hut area in the mid-1800s (Moore 1999). As they were perceived to be competing with cattle, by the 1860s feral horses were caught for sale or shot (Higgins 1993). Organised 'brumby running' (i.e. the chasing and capturing of wild horses from horseback) was undertaken as early as the 1920s and remained popular in the area up until the early 1960s (Higgins 1993). A number of historic trapping yards, seven of which are listed on the ACT Heritage Register (ACT Heritage Council n.d.), illustrate the early distribution of feral horses across Namadgi NP (Higgins 1993). This includes areas around Snowy Flats, Mt Ginini, and Smokers, Kangaroo and Creamy Flats.

Despite brumby running, the population of feral horses was approximately 200 during the 1950s and 1960s (Walter 2002). Most of those horses residing at high altitudes are believed to have been eliminated during heavy snowfalls in 1964. The remaining horses were eradicated by aerial and ground shooting in 1987 (Walter 2002), in accordance with the Namadgi National Park PoM (ACT PCS 1986) (see Box 1).

Namadgi NP remained free of feral horses until 2001-02 when bushwalkers reported horses and horse sign at Jack's Flat, on the ACT border. Management staff confirmed the presence of these horses in 2003.

Trap yards were erected in early 2004 to capture the animals and lead them to vehicle transport. The plan was unsuccessful as the horses were unable to be located and had likely returned to Kosciuszko to escape dry conditions. The same core group of horses, which had grown to between 10 and 15 individuals, moved between Kosciuszko NP, and Mt Murray and Jack's Flat during 2005 and 2006.

During 2003 and 2004, a group of four horses also moved between Orroral Valley, Cotter Gap and Corin Dam. These animals were observed causing damage to the Rock Flats Wetland, which is listed as a Nationally Important Wetland (Australian Government 2019). A ground shooting operation was undertaken in 2004 to cull the horses. Despite the detailed planning and experience of staff, only two of the four horses were shot successfully; the other two horses escaped uninjured. Another ground-based operation was organised three months later and was successful in dispatching the remaining two horses.

In 2004, barrier fencing was constructed near Jack's Flat, Murray's Gap and Leura Gap to prevent the movement of horses from Kosciuszko NP into Namadgi NP. The effectiveness of the fences was limited as they required significant maintenance and, in some areas, horses were able to move around the barriers.

Box 1. Recovery following removal of feral horses in 1987

Feral horses were removed from Smoker's Gap, Namadgi NP in 1987. The image taken in 1988 illustrates the rapid recovery of the area seven months after their removal. There is an increase in sedges and less open water, which is likely to have provided increased habitat for invertebrates and frogs. Today, over 30 years since horses were removed, sedges remain abundant and the ground cover has a more diverse structure (including large tussocks of *Poa* and *Carex*). The shrubs fringing the aquatic habitat have also become more abundant. The improvements in vegetation structure are likely to provide increased habitat for a range of fauna species.

Small groups of horses, with home ranges likely to include northern Kosciuszko NP, were observed around Bimberi Flat in 2006. Since the implementation of the 2007 Namadgi NP Feral Horse Management Plan, 24 horses have been trapped and humanely destroyed in Namadgi NP. Today, the only known presence of feral horses in the Park is one lone stallion that frequents the border region between Kosciuszko NP and Namadgi NP near Mt Bimberi. There is a group of semi-wild domestic horses in the Clear Range area, which have the potential to form a feral population within Namadgi NP. No resident feral horses have been recorded in Namadgi NP since 2011.



3.2 FERAL HORSES IN THE REGION

Distribution of feral horses

Feral horses have been present in the Australian Alps since the early 1830s and today they occur in considerable numbers across the region, including: Kosciuszko NP (NSW), Bago State Forest (NSW), Maragle State Forest (NSW), Alpine NP and adjacent state forest (Victoria), as well as some adjoining private property in both NSW and Victoria. The primary distribution of feral horses in NSW is illustrated in Figure 1 (see also Cairns 2019).

Since 2001, five aerial surveys have been conducted to estimate the population of feral horses across the Australian Alps. In 2014, the population of feral horses was approximately 9,187; by 2019, the population expanded to 25,318 (Cairns 2019).

The population of feral horses within the northern area of Kosciuszko NP, which poses the biggest threat to Namadgi NP (see Section 3.3), has grown at an annual rate of 37% since 2014 (Cairns 2019). In 2014, the population was estimated at 3,255; by 2019 the population grew to 15,687 (Cairns 2019). In 2019, the density of horses in this area was approximately 11.5 horses per km², which is substantially higher than areas surveyed in Bago and Maragle State Forests, and the Byadbo and northern Victoria region (1.3 and 2.63 horses per km² respectively) (Cairns 2019). It is unclear whether available resources and/or unpredictable climate and natural events, such as fire, will limit further population growth. It is possible that the number of feral horses in the area will continue to grow and their range expand.

The Australian Alps National Parks were impacted by large-scale wildfires in 2002-03 and 2020. The 2002-03 wildfires burned large parts of the Australian Alps, including over 70% of the distribution of the feral horse population. This included 100% of their range in Victoria but very little of their range in northern Kosciuszko (Walter 2003). While the number of feral horses across the Alps declined immediately following the fire (Walter 2003), the population responded quickly afterwards, increasing at an annual rate of over 21% in the five years following the fire (Dawson 2009).

Significant areas of the Australian Alps, particularly Kosciuszko NP, were burnt during wildfires in 2020. Aerial surveys have not been undertaken to assess the impacts on feral horses. However, it is likely that few animals would have been lost through direct mortality and any potential reduction in the population in the following months (due possibly to a decline in available resources) is likely to be followed by significant annual growth rates.

Impacts of feral horses

Driscoll et al. (2019) argue that the impact of feral horses is currently the most significant threat operating at a landscape level across the Australian Alps. Despite some control measures (see Section 3.5), feral horses continue to exert significant pressure on waterways, vegetation and fauna in the region, including threatened communities and species, and cultural heritage values.

Natural values

The Australian Alps region is a significant source of water, contributing approximately 29% to the average surface water of the Murray-Darling Rivers (Driscoll et al. 2019). Damage to water courses by feral horses has implications for the integrity and biodiversity values of those systems. Specifically, the pressure that feral horses place on alpine moss bogs and riparian zones in the region is degrading water quality and increasing variability in rates of water flow from mountain catchments (see Box 2 and Pittock & Finlayson 2018). Several studies have illustrated significant impacts from feral horses on soils (e.g. erosion), vegetation (e.g. trampling and loss of cover), temperature and condition (e.g. sedimentation and nutrient level) of water associated with streams and *Sphagnum* bogs (including those listed as threatened under the [Environment Protection and Biodiversity Conservation Act 1999](#) [the EPBC Act]) (Dyring 1990; Porfirio et al. 2017; Paul 2018; Tolsma et al. 2018; Cherubin et al. 2019; Foster & Scheele 2019; Robertson et al. 2019; Scanes & Dickson 2020).



Feral horses travel on defined tracks, which often exhibit signs of trampling and selective grazing (Dyring 1990). Soils along these routes and other areas trampled by horses can have altered hydrology and may be structurally damaged, leading to erosion and soil loss, or compacted (Dyring 1990; Ward-Jones et al. 2019). Trampling and grazing may also contribute to changes in subalpine and alpine native vegetation. Various research projects have illustrated that the cover, structure, condition and richness of subalpine and alpine vegetation across the region's grasslands, heath, woodlands and wetlands (including those listed as threatened under the EPBC Act) can be negatively impacted by the presence of feral horses (Dyring 1990; Bie and Vesk 2014; Porfirio et al. 2017; Tolsma et al. 2018; Cherubin et al. 2019; Ward-Jones et al. 2019).

Impacts to waterbodies, soils and vegetation can result in changes to fauna assemblages. For example, the occurrence of horses in the Australian Alps is negatively associated with the presence and abundance of a range of invertebrates (Ward-Jones et al. 2019; Scanes and Dickson 2020). Cherubin et al. (2019) show that changes in vegetation of *Sphagnum* bogs associated with feral horses in Victoria impacts the presence and abundance of the Alpine Water Skink (*Eulamprus kosciuskoi*) and the Broad-toothed Rat (*Mastacomys fuscus*). Similarly, Schulz et al. (2019) demonstrate the need to protect drainage lines to prevent long-term declines, and potential localised extinctions, of the Broad-toothed Rat in Kosciuszko NP.

Recent research also illustrates the damage caused by horses around small, seasonally flooded pools reduces habitat quality for breeding Corroboree Frogs (*Pseudophryne pengilleyi*) (Foster & Scheele 2019).

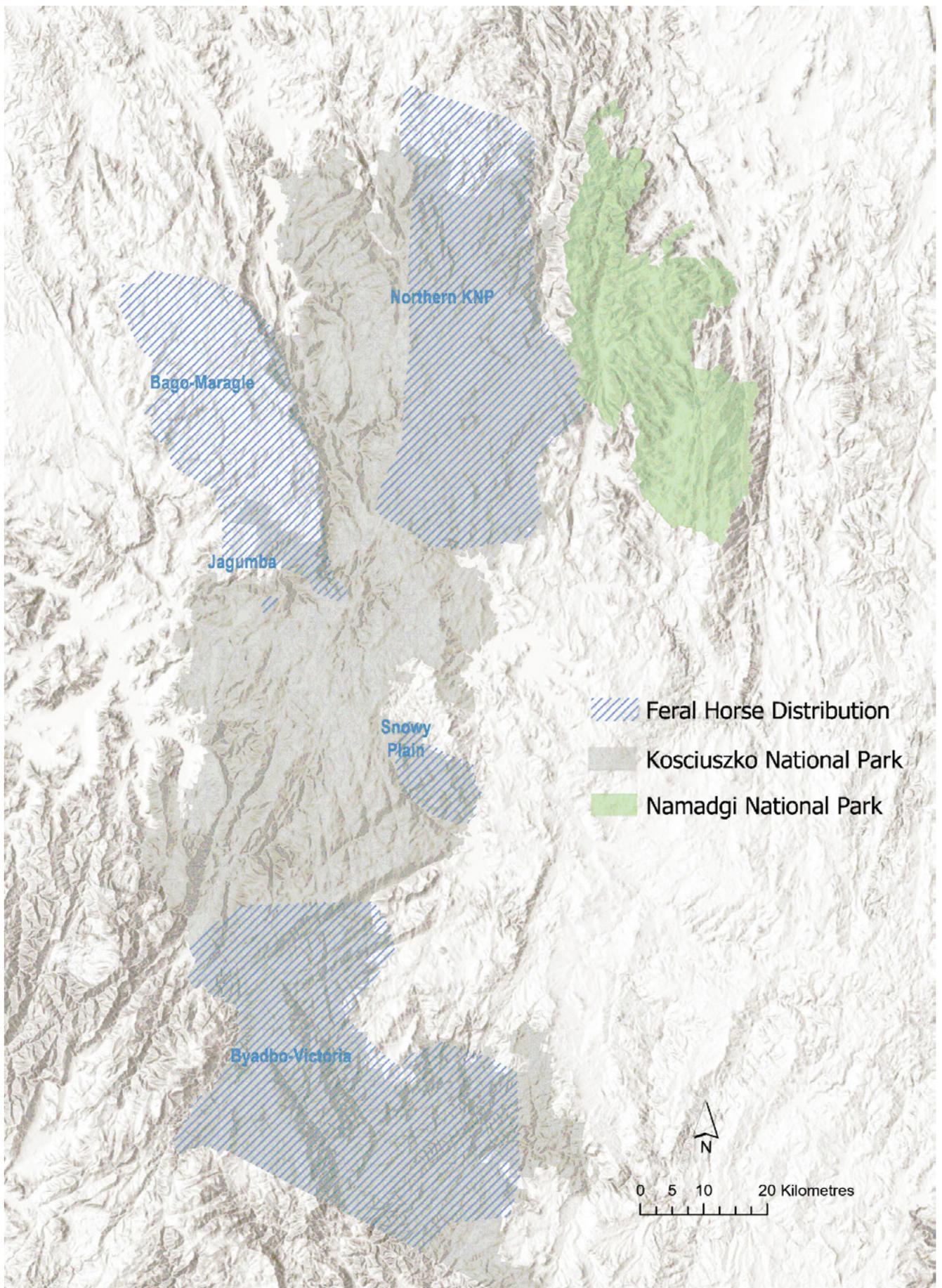
Cultural heritage values

There are many sites throughout the region that demonstrate the historical and ongoing connection of Ngunnawal people to the landscape. This includes both archaeological sites and places associated with traditional stories and teachings. Horses can cause direct or indirect damage to sites through grazing and trampling vegetation, and damaging soils. Damage to Ngunnawal sites in the region has been documented where feral horses are known to occur in moderate to high densities (NSW Government 2016a; Parks Victoria 2018).

Historical heritage values

The Australian Alps have a strong association with Australia's pioneering history. Mountain huts, homesteads and stockyards are valued as demonstrations of the cultural history of the area (Commonwealth of Australia 2008). By seeking shelter, shade or mineral salts, feral horses have caused physical damage to some of these assets, including several huts in Kosciuszko NP (NSW Government 2016a). Other structures show signs of rubbing and chewing for salt (NSW Government 2016a).

Figure 1: Distribution of feral horses in NSW (as of 2016) (NSW Government data 2016)



Feral horse control plans and policies

Today, feral horses are found primarily in the northern and southern regions of the Australian Alps, including areas in both NSW and Victoria. Control of feral horses in this region is currently undertaken in accordance with several plans, including:

STATE	PLAN
NSW	Kosciuszko National Park: Horse Management Plan - December 2008 (NSW Government 2007)
Victoria	Protection of The Alpine National Park Feral Horse Strategic Action Plan 2018-2021 (Parks Victoria 2018)
ACT	Namadgi National Park Feral Horse Management Plan 2007 (ACT Government 2007), to be replaced by Namadgi National Park Feral Horse Management Plan 2020 (this plan) once finalised

A description of current policies guiding feral horse control across NSW and Victoria is outlined below. It is important to note that strategies and issues relating to feral horse control are somewhat fluid in both jurisdictions.

New South Wales

Key objectives of the **Kosciuszko National Park: Horse Management Plan - December 2008** are to exclude horses from several areas, including areas adjoining other national parks and reserves, and reduce numbers in other areas to reduce the risks they pose. Passive trapping, followed by removal, is the primary control method proposed; aerial shooting is not permitted under the Plan. A review of the Kosciuszko National Park: Horse Management Plan 2008, undertaken in 2016, concluded that the 2008 Plan failed to achieve the key objectives noted above, and that trapping and removal was costly, time consuming and did not effectively reduce the wild horse population (NSW Government 2016b). A revision of the 2008 Plan, entitled: **Draft Wild Horse Management Plan - Kosciuszko National Park**, was drafted in 2016. Amongst other revisions, the revised Plan significantly expands proposed control methods (including the use of trapping and culling on site) and aims to reduce the density of the population of feral horses bordering Namadgi NP (NSW Government 2016a). This plan is yet to be endorsed by the NSW Government.

The NSW Government recently passed the [Kosciuszko Wild Horse Heritage Act 2018](#), which recognises and aims to protect the heritage value of sustainable wild horse populations within parts of Kosciuszko NP. The Act requires the development of a Wild Horse Heritage Management Plan for Kosciuszko NP. Community and Scientific Advisory panels were appointed in September 2019 to play a key role in the development of this Plan.

While the NSW Government considers the full implications of the Act, the 2016 **Draft Wild Horse Management Plan - Kosciuszko National Park** (NSW Government 2016a) has not been finalised. The uncertainty of this policy is preventing effective, large-scale control of feral horses and their impacts in Kosciuszko NP.

Victoria

Significant numbers of feral horses exist across Victoria, including large populations in the Alpine NP, which is a component of the Australian Alps National Parks network. The most recent surveys estimate the horse population in the southern Alps, which includes areas in both NSW and Victoria, to be 8,518 (Cairns 2019). The largest population of horses in Victoria is in the Eastern Alps, bordering Kosciuszko NP. There are also smaller populations on the Bogong High Plains and in Barmah.

The **Protection of the Alpine National Park - Feral Horse Strategic Action Plan 2018-2021** is the first plan for managing feral horse populations in Victoria's Alpine NP. The Plan aims to remove 1,200 feral horses from the Eastern Alps in the first three years. Trapping and rehoming horses is a priority of the Plan (Parks Victoria 2018).

3.3 THE THREAT TO NAMADGI NATIONAL PARK

There is significant opportunity for feral horses to expand into many areas of the Australian Alps not currently occupied. Modelling undertaken by Beeton and Johnson (2019) predicts that, without population control in the ACT and under current control regimes in Kosciuszko NP (and Victoria), feral horses would likely move into substantial areas of Namadgi NP. Figure 2 illustrates the modelled distribution of feral horses within ten years if no control activities are undertaken across the Australian Alps region. Figure 3 identifies areas of habitat that are likely to be suitable for horses across Namadgi NP. Subalpine bogs and wetlands (i.e. aquatic herbfield/wet heathland), and grassland and heath communities are mapped as ‘preferred habitat.’ Areas of ‘other potential habitat’ include communities mapped as woodland and riverine forest.

Namadgi NP borders rural properties in the ACT and NSW and there is potential for domestic horses to stray from properties into the Park. There is also a small risk that horses may be deliberately released into the Park if owners are unable to adequately care for their animal/s. While horse owners have a responsibility to contain their animals, domestic horses have, in the past, entered Namadgi NP from freehold properties in the Clear Range area. Cooperating with NSW agencies and neighbouring land holders is critical to mitigating this risk.

While escaped and released domestic horses have the potential to establish feral populations in the Park, horses are most likely to enter Namadgi NP from populations of feral horses in the northern plains of Kosciuszko NP. Historically, horses have entered from this area through Bimberi Nature Reserve. In most cases, rough terrain and thick vegetation has limited horse movements to Murray and Leura Gaps and Jack’s Flat. However, fire may remove vegetation and open up the landscape in such a way as to facilitate the movement of feral horses.

The impact of extensive wildfires in 2020 may influence horse distribution patterns in northern Kosciuszko. However, preliminary observations undertaken by the ACT Government indicate key areas between Namadgi NP and north Kosciuszko remain unburnt. Thus, it is unlikely these wildfires have resulted in any considerable changes to the landscape that would further facilitate the movement of horses into Namadgi NP (O. Orgill 2020, pers. comm.). Nevertheless, recent control measures have been insufficient to deal with feral horse populations in NSW and, with current policy uncertainty, the threat of horses migrating into Namadgi NP is extreme and ongoing (Beeton & Johnson 2019). Results of surveys in 2019 indicate the density of horses in Northern Kosciuszko is high and the number of animals has increased significantly in the last five years. The ecological, cultural and water values of Namadgi NP at risk by feral horses are outlined below.

Figure 2: Modelled feral horse distribution over a ten year period with no regional feral horse control and (left) low annual population growth rate and dispersal speed (6% and approx. 0.5km/year respectively), and (right) high annual growth rate and dispersal speed (17% and approx. 2km year respectively) (Beeton & Johnson 2019)

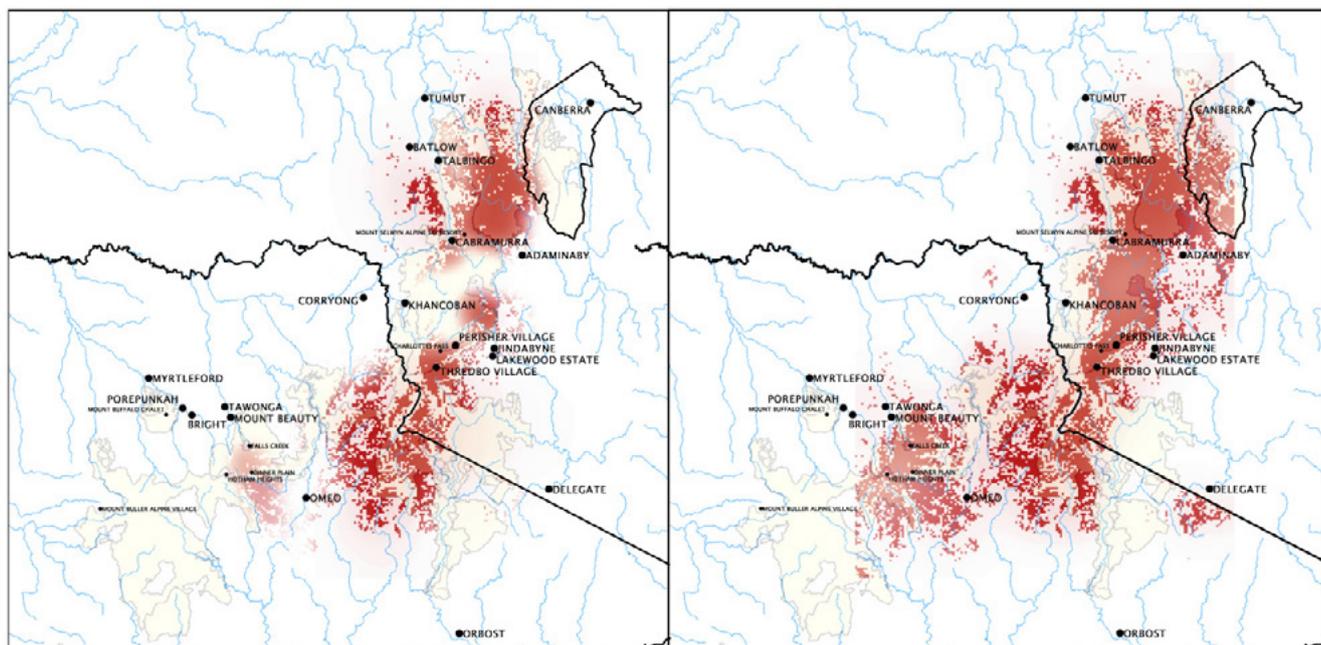
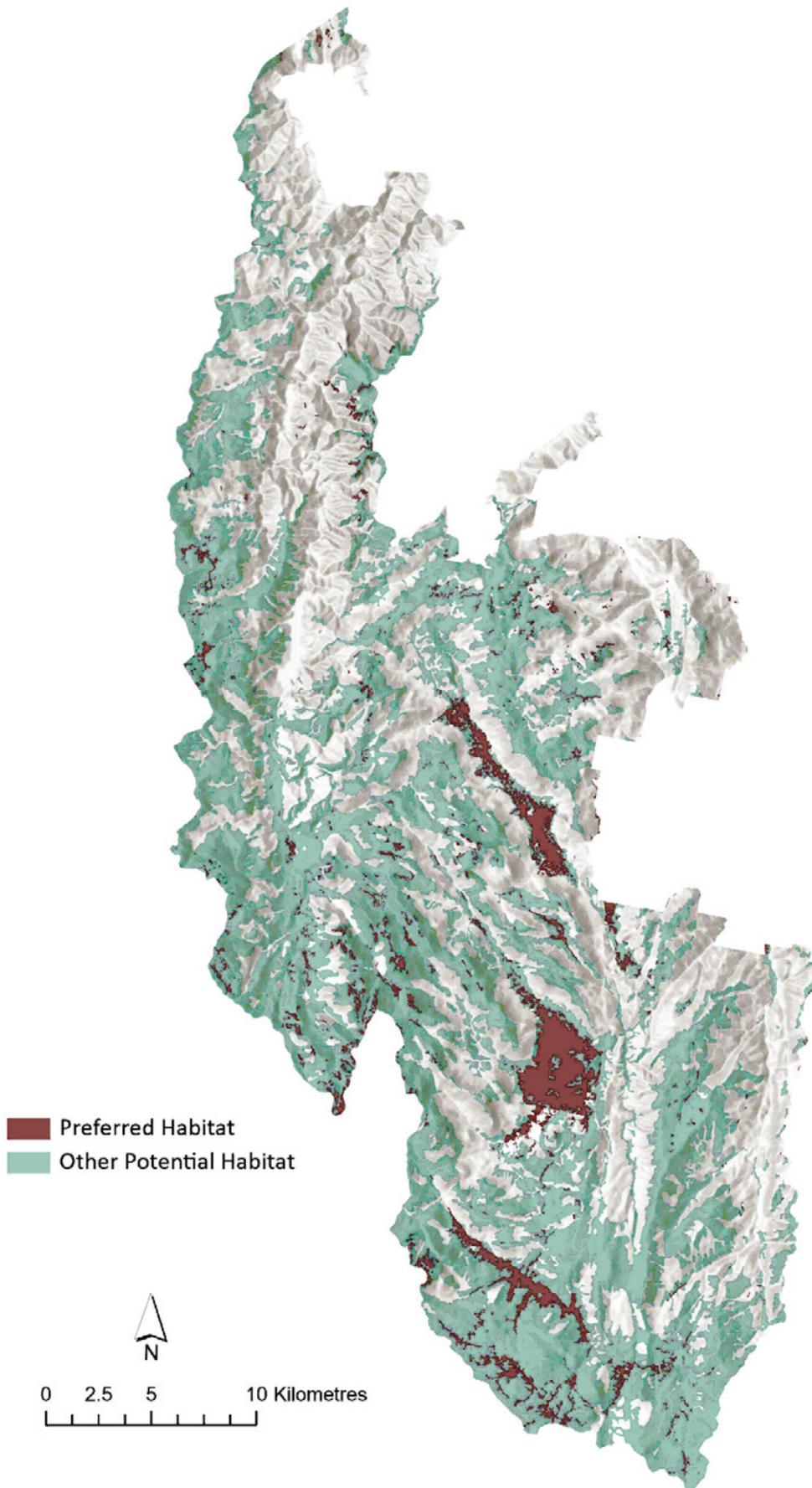


Figure 3: Habitat potentially suitable for feral horses in Namadgi NP
Preferred = bogs and fens, heath and grassland. Other Potential = woodland and riverine forest.



Box 2. A visual comparison of an undisturbed bog and a bog subject to disturbance by feral horses

The images below were taken in 2014. The image of Ginini Bog wetland in the ACT (a) illustrates *Sphagnum* bog hummocks and dense and diverse heath (and other) vegetation, which provides habitat for a range of birds, amphibians, reptiles and mammals, and protects soil from erosion. The water appears in good condition.



Conversely, the water in the bog along Ingeegoodbee River in NSW that is impacted by feral horses (b), has increased turbidity, the surrounding vegetation has been simplified (i.e. no heathland or *Sphagnum*) and the banks are eroded. This system provides little habitat for fauna and leaves water open to evaporation.



G. Worboys

3.4 NATURAL AND CULTURAL VALUES OF NAMADGI NATIONAL PARK

The natural landscape

The Australian Alps national parks network is characterised by several landscape types including alpine peaks, treeless high plains and frost hollows, alpine and subalpine wetlands, significant river systems, tall wet forests, and Snow Gum and Rainshadow Woodlands (Mackey et al. 2016). Namadgi NP forms an important part of this network and exhibits a range of these landscape types.

Alpine peaks

There are no extensive areas of treeless alpine peaks and ridges in Namadgi NP. However, there are several significant peaks, including Mounts Kelly, Murray, Ginini, Gingera, Scabby, Gudgenby and Namadgi, and Bimberi Peak. Subalpine valleys and frost hollows, where cold air drains and conditions are too cold for tree growth, are associated with the undulating topography of Namadgi NP. Montane and subalpine grasslands, including areas listed as part of the Endangered Natural Temperate Grassland Ecological Community, are common in these valleys. Long Flat, Grassy Creek, Orroral Valley, Sam's Creek, Nursery Creek, Rendezvous Creek, Bogong Creek, and Emu Flats contain extensive areas of Natural Temperate Grassland (ACT Government 2017a).

Wetlands

Namadgi NP contains several alpine and subalpine wetlands (i.e. bogs and peatlands in high altitude wetlands and waterways). Many of these areas have local, national and/or international significance and several are listed as Endangered and Critically Endangered under ACT and national legislation respectively (see below). The Ginini Flats Wetland Complex is one of the largest, deepest and least disturbed subalpine *Sphagnum* bogs in mainland south-eastern Australia and is listed on the Ramsar List of Wetlands of International Importance (Australian Government 2019).

The Directory of Important Wetlands in Australia lists 11 nationally important wetlands in Namadgi NP:

- Cotter Flats
- Ginini and Cheyenne Flat complex
- Rock Flats
- Rotten Swamp
- Scabby Range Lake
- Snowy Flats
- Upper Cotter River
- Upper Naas Creek
- Bendora Reservoir
- Nursery Swamp
- Cotter Source Bog.

Bogs and wetlands in Namadgi NP play an important role in filtering and storing water and thus protecting water quality within the local catchment. They also provide important habitat for the Critically Endangered Northern Corroboree Frog and the Vulnerable Broad-toothed Rat and may support the Alpine Tree Frog (*Litoria verreauxii alpina*). During the 2003 wildfires, all 11 Nationally Important Wetlands were burnt; the extent of each wetland burnt ranged from 70-100% (Carey et al. 2003). Bogs, fens and other wetlands were also significantly impacted during the 2020 Orroral Valley wildfire, which burnt almost 80% of Namadgi NP (ACT/NSW RRAT 2020). The majority of the 11 nationally recognised wetlands were burnt and most sites were burnt in their entirety (i.e. between 90-100% of the extent of each wetland). The Ginini Wetland Complex was not burnt.

While some wetlands recovered relatively quickly following the 2003 fires, it is likely to be a long time before the cover of some species is restored (McDougall 2007). The process of recovery in some areas was impeded by the impacts of the 2020 Orroral Valley wildfire. Many of these systems are likely to remain sensitive to any additional threatening process, such as feral horse impact, for a long time.

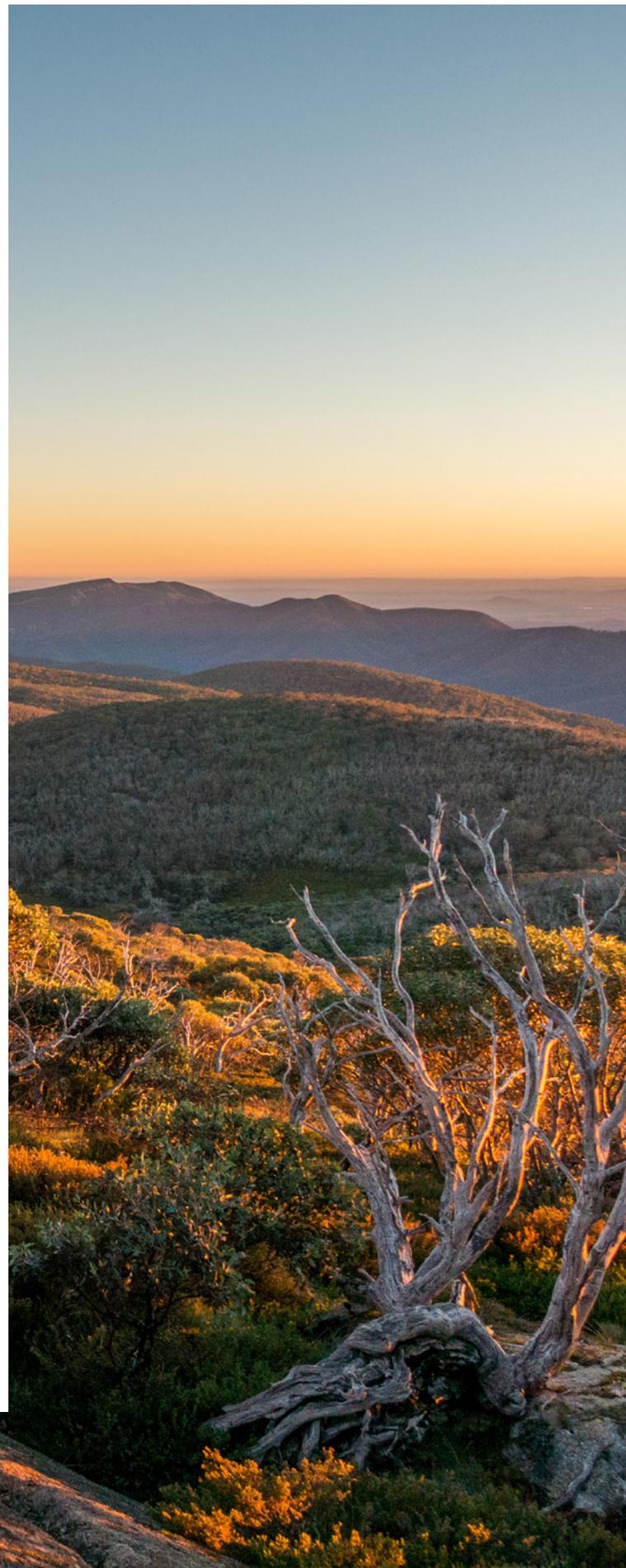
Rivers

The Cotter, Paddys, Orroral, Naas and Gudgenby Rivers are all located, at least in part, in Namadgi NP (ACT Government 2018a). As well as playing a key role in providing clean water to Canberra and Queanbeyan communities, river and stream systems have high biodiversity value, including providing habitat for threatened aquatic species (see below). Montane grasslands are commonly associated with these systems in Namadgi NP; common wooded vegetation includes Black Sallee (*Eucalyptus stellulata*) and Ribbon Gum (*Eucalyptus viminalis*).

Vegetation

According to the classification system developed by Armstrong et al. (2013), there are 42 different vegetation communities identified in Namadgi NP. This includes communities broadly classified as forest, woodland, grassland, heaths, and bogs and fens. Dry and wet sclerophyll forests cover over 87,000 hectares and are the most widespread vegetation types in Namadgi NP. Wet forests in Namadgi NP are dominated by Alpine Ash (*Eucalyptus delegatensis*), Ribbon Gum and Robertson's Peppermint (*E. radiata* subsp. *robertsonii*).

Subalpine and grassy woodland communities are also common and cover over 55,000 hectares of the Park. Woodlands and forests dominated by Snow Gum (*Eucalyptus pauciflora*) cover extensive areas (over 48,000 hectares) at the highest elevations (ACT Government 2019c). Montane grasslands most commonly occur on the broad flats and lower slopes associated with creeks and rivers, typically in areas with severe frosts (ACT Government 2017a). Subalpine grasslands commonly occur between *Sphagnum* moss bogs and surrounding woodland (ACT Government 2017a). Together, montane and subalpine grasslands (and other native grasslands) cover approximately 26,000 hectares in Namadgi NP.



Threatened species and ecological communities

Ecological communities

Three vegetation communities occurring within Namadgi NP are threatened under the [ACT Nature Conservation Act 2014](#):

- Critically Endangered Natural Temperate Grassland (NTG)
- Critically Endangered Yellow Box – Blakely’s Red Gum Grassy Woodland (YB-BRG Woodland)
- Endangered High Country Bogs and Associated Fens.

Natural Temperate Grassland is one of the most threatened ecosystems in Australia. The most extensive areas of NTG in the ACT are located in valleys within Namadgi NP (ACT Government 2017a). These include Long Flat, Grassy Creek, Orroral Valley, Sam’s Creek, Nursery Creek, Rendezvous Creek, Bogong Creek, and Emu Flats (ACT Government 2017a). This community forms part of the Natural Temperate Grassland of the South Eastern Highlands community listed as Critically Endangered under the EPBC Act.

Very small remnants of Critically Endangered YB-BRG Woodland occur in lower elevations in the eastern edges of Namadgi NP.

These patches, which cover just over 200 hectares, are a component of the White Box–Yellow Box–Blakely’s Red Gum Grassy Woodland and Derived Native Grassland community, which is listed as Critically Endangered under the EPBC Act.

Endangered High Country Bogs and Fens occur in small isolated patches throughout the Australian [Alps Patches](#) of this community, many of which are consistent with the EPBC listed *Sphagnum* Bogs and Associated Fens, occur in Namadgi NP. These patches represent the northern extent of the distribution of this community and have ecological significance as they provide habitat for rare and threatened species. They also play an important role in maintaining the water supply for the ACT (ACT Government 2019e). The Ginini Flats Wetland Complex is the largest intact bog and fen community in the Australian Alps and, as outlined above, has international significance (ACT Government 2019e). Fire is identified as a key threat to this community because regeneration of associated vegetation is primarily reliant on unburnt fragments. The vulnerability of the community to a range of other threats, including large animals, also increases after fire (Australian Government 2009). Although Ginini Flats remained unburnt in 2020, large areas of bogs and fens in Namadgi have burned twice in 17 years.

Northern Corroboree Frog (M. Evans)



Threatened species

Six flora species and 17 species of fauna listed as threatened in the ACT are located within Namadgi NP (see Table 1).

Table 1. Flora and fauna species threatened in the ACT and located in Namadgi

NT= Near Threatened, V =Vulnerable, E = Endangered, CE = Critically Endangered

FLORA COMMON NAME	SCIENTIFIC NAME	COMMONWEALTH EPBC ACT 1999 (MNES)	ACT NATURE CONSERVATION ACT 2014	NSW / VICTORIA*
Austral Toadflax	<i>Thesium australe</i>	V	V	V (NSW, Vic)
Baeuerlen's Gentian	<i>Gentiana baeuerlenii</i>	E	E	E (NSW)
Brindabella midge orchid	<i>Corunastylis ectopa</i>	CE	CE	-
Hoary Sunray	<i>Leucochrysum albicans</i> var. <i>tricolor</i>	E		E (Vic)
Kiandra Greenhood	<i>Pterostylis oreophila</i>	CE	CE	CE (NSW), E (Vic)
Orchidaceae**	All species	Various	Protected native species	-
Pale Pomaderris	<i>Pomaderris pallida</i>	V	V	V (NSW)
FAUNA COMMON NAME	SCIENTIFIC NAME	COMMONWEALTH EPBC ACT 1999 (MNES)	ACT NATURE CONSERVATION ACT 2014	NSW / VICTORIA*
Broad-toothed Rat	<i>Mastacomys fuscus mordicus</i>	V	V	V (NSW), E (Vic)
Brown Treecreeper	<i>Climacteris picumnus</i>		V	
Brush-tailed Rock-wallaby (locally extinct)	<i>Petrogale penicillata</i>	V	E	E (NSW), CE (Vic)
Greater Glider	<i>Petauroides volans</i>	V	V	V (Vic)
Hooded Robin	<i>Melanodryas cucullata</i>		V	V (NSW), NT (Vic)
Little Eagle	<i>Hieraaetus morphnoides</i>		V	V (NSW)
Macquarie Perch	<i>Macquaria australasica</i>	E	E	E (Vic)
Murray River Crayfish	<i>Euastacus armatus</i>		V	NT (Vic)
Northern Corroboree Frog	<i>Pseudophryne pengilleyi</i>	CE	CE	CE (NSW)
Scarlet Robin	<i>Petroica boodang</i>		V	V (NSW)
Smoky Mouse	<i>Pseudomys fumeus</i>	E	E	CE (NSW), E (Vic)
Spotted-tailed Quoll	<i>Dasyurus maculatus</i>	E	V	V (NSW), E (Vic)
Trout Cod	<i>Maccullochella macquariensis</i>	E	E	CE (Vic)
Two-Spined Blackfish	<i>Gadopsis bispinosus</i>		V	-
Varied Sittella	<i>Daphoenositta chrysoptera</i>		V	V (NSW)
Verreaux's Alpine Tree Frog	<i>Litoria verreauxii alpina</i>	V	V	E (NSW), CE (Vic)
White-winged Triller	<i>Lalage sueurii</i>		V	-

* As listed under the NSW Biodiversity Conservation Act and the Victoria Threatened Species Advisory List and / or under the Victorian Flora and Fauna Guarantee Act 1988.

** All species of orchids are listed as Protected Native Species under the ACT Nature Conservation Act. Several species are listed as threatened under the EPBC Act.



Corin Dam (Conservation Research photo library)

Water catchment values

To ensure that future generations can benefit from a safe and clean water supply, the protection of water resources is one of the highest priorities for management of Namadgi NP (ACT Government 2010).

Namadgi NP includes the primary water supply catchment for Canberra and protects 51% of all aquatic and riparian areas in the ACT (ACT Government 2018a). The rivers that run through Namadgi NP, including the Cotter, Paddys, Gudgenby and Naas rivers, are important sources of water that drain into the Murrumbidgee River system. The western and southern boundaries of the Park (and the ACT) are defined by the catchments of the Cotter and Gudgenby river systems. The Park protects all of the upper and middle sections of the Cotter Catchment and 65% of the lower Cotter Catchment (ACT Government 2010). The Cotter Catchment supplies water storage reservoirs at Corin, Bendora and Cotter.

The Bimberi Wilderness Area, declared in 1989, includes most of the upper Cotter Catchment and comprises 27% of Namadgi NP. This area connects to wilderness areas in NSW and is managed primarily to protect its value to the water supply, as a wilderness area and as an opportunity for visitors to enjoy solitude. Importantly, a key management objective for wilderness areas (as outlined in the Planning and Development Act 2007) is to conserve the natural environment in a manner that ensures disturbance to that environment is minimal.

Cultural heritage values

Namadgi NP has both Ngunnawal and European cultural heritage values. Ngunnawal people are recognised as the Traditional Custodians of the Namadgi area and have held connections to the Country for thousands of years. For Ngunnawal people, maintaining connections with this land and upholding traditional responsibilities to care for the Country is vitally important. This includes maintaining cultural sites and their associated stories that link places to people. There are many places and objects within Namadgi NP that are listed on the ACT Heritage Register. These sites are some of the most significant in the ACT and include art sites, sacred landscape features, grinding grooves and stone arrangements.

Namadgi NP is included on the National Heritage List as part of the Australian Alps National Parks and Reserves. This listing recognises the area's unique natural environment, which includes a range of landforms, and longstanding human interaction, including the pioneering history and scientific endeavours. The listing also acknowledges the national heritage significance of past large-scale annual gatherings of Ngunnawal and other Aboriginal people associated with feasting on Bogong Moths (*Agrotis infusa*), which aestivate in large number in the Alps during summer (Commonwealth of Australia 2008).

Namadgi has significant European cultural heritage values that date back to early colonisation and the establishment of pastoralism and agriculture in the area. There are a number of sites on the ACT Heritage Register that attest to this rich history, including homesteads and huts, brumby yards, and ploughlands. Orroral Valley and Honeysuckle Tracking Stations were key in Australia's participation in the United States' Space Program. These sites, now decommissioned, are recognised on the Australian Alps National Heritage listing for their contribution to scientific research (Commonwealth of Australia 2008). Other historic land uses such as recreational skiing, forestry and arboriculture, and water harvest are outlined in the Namadgi PoM (ACT Government 2010).

3.5 METHODS FOR CONTROL OF FERAL HORSES

A wide range of methods for the control of feral horses have been assessed and implemented across the region and elsewhere. The most suitable method in any circumstance depends on a range of factors, including number of horses, mob size and age structure, accessibility, terrain, impacts and season. Key considerations are the humane treatment of horses, the safety of people involved in operations, efficiency and available resources (including existing infrastructure), and the socio-political setting. In many cases, a combination of control methods and techniques is most appropriate for the control of feral horses. The key control methods that may be employed across the Australian Alps are outlined below.

Passive trapping and removal

The primary method to control feral horses in the region has been to trap them in yards and transport them out of the area. Trapped horses may be rehomed or sent to an abattoir or knackery. Passive trapping involves establishing yards and using lures (such as salt, molasses and/or lucerne) to encourage feral horses to enter the yards. Once inside, horses may be trapped individually or in groups of up to ten or more at a time. In 2019, 99 horses were trapped and removed from the Blue Waterholes campground in Kosciuszko NP. The operation aimed to reduce interactions with the public and support safety objectives of the park. Trapping is time consuming and expensive but when undertaken in easily accessible areas, it can be an effective way to remove feral horses. As outlined in Sharp (2011d), passive trapping is a preferred method when managing horses at low densities.

While passive trapping is likely to have a mild to moderate impact on the overall welfare of horses (Sharp & Saunders 2011; OEH 2014), loading and transporting horses over long journeys, when horses are not provided food or water for 4-24 hours, has a severe impact on their overall welfare (OEH 2014).

The Australian Animal Welfare Standards and Guidelines – Land Transport of Livestock provides guidance to minimise risks to the welfare of livestock, including horses, during transportation (AHA 2012). The Code of Practice for the Capture and Transport of Feral Horses was developed as part of a report on the management of feral horses in national parks in New South Wales (English 2001). This report noted that even with the best system in place, the capture and subsequent transport of feral horses is extremely stressful for animals (English 2001). Consultation undertaken by Straight Talk (2015) on management of feral horses in NSW, demonstrated the community has considerable concern about the stress endured by horses during transportation.

The 2016 review of the Kosciuszko National Park: Horse Management Plan (NSW Government 2016b) found that trapping and live removal, as undertaken in Kosciuszko NP, has been expensive and has not effectively reduced the wild horse population or the extent of associated impacts.

Trapping and transporting will not be used for the control of feral horses in Namadgi NP but may be used to remove 'stray' domestic horses from the park.

Horses grazing in a montane fen, Kosciuszko National Park. (NSW Government)





Passive trapping and humane destruction on site

Horses that are trapped using the methods outlined above can be humanely destroyed on site. This method has not been employed commonly across the region, although it has taken place in Namadgi NP (ACT Government 2007) and is proposed in NSW Government (2016a) and Parks Victoria (2018) in specific circumstances. Importantly, this method prevents horses enduring the stress of transportation and is not limited by rehoming opportunities or other off-site disposal means.

Ground shooting

Skilled shooters can be employed to find and dispatch feral horses in a humane way. Ground shooting can be an effective tool for mitigating the impacts of feral horses but is best employed in accessible, flat areas where there are low numbers of individuals (Sharp 2011a). Importantly, in wooded or rough terrain, it can be difficult to follow individuals and ensure that wounded animals are destroyed quickly (Sharp 2011a). Ground shooting is not considered practical if large-scale control is required (Sharp 2011a).

This method has not been employed broadly across the Alps region. However, the Victorian Government has plans to introduce ground shooting of free ranging horses as a control measure in areas where conservation is a high priority. Ground shooting is also proposed as a potential method in Draft Wild Horse Management Plan - Kosciuszko National Park 2016 (NSW Government 2016a).



Aerial shooting

Feral horses can be located and shot from a helicopter using trained and qualified shooters. Aerial culling can be a humane control method when employed appropriately (Sharp 2011b; AVA 2018) and is the most cost-effective landscape-scale method of feral horse control for the Australian Alps (Beeton & Johnson 2019). Helicopter-assisted culling of feral horses is undertaken across extensive areas in Australia, including in Western Australia, the Northern Territory and South Australia. In 2019, 235 feral horses were successfully culled during an aerial control operation in the Singleton Military Training Area in NSW (Parliament of Australia 2019). Other pest animals are successfully controlled using aerial shooting in locations where the terrain and vegetation cover are comparable to those areas inhabited by feral horses in the Australian Alps.

Importantly, aerial shooting is quick and eliminates stress endured during mustering and trapping (AVA 2018). Aerial shooting is most effective in areas of low vegetation cover (i.e. high visibility from the air) and is most cost-effective when the density of horses is high (Sharp 2011b). The humaneness of aerial shooting is dependent on the skill and judgement of the shooter and helicopter pilot (Sharp 2011b; Hampton et al. 2017). The high mobility of helicopters ensures that, unlike ground shooting in rough and remote terrain, wounded horses can be rapidly followed and dispatched.

While researchers stress the importance of employing aerial culling to effectively reduce feral horses across the Australian Alps (Beeton & Johnson 2019; Driscoll et al. 2019), surveys suggest communities in NSW and Victoria are polarised on the employment of this method (Straight Talk 2015; Parks Victoria 2018). The highly politicised nature of aerial culling was illustrated following an aerial shooting operation in Guy Fawkes NP in NSW in 2000. The operation attracted significant media attention and public outcry and resulted in the (then) NSW Minister for the Environment placing a moratorium (still in place) on the use of aerial shooting as a control method for feral horses in NSW national parks. Recent consultation undertaken with the broader NSW community indicates that although it is not a preferred approach to mitigating the impacts of feral horses, aerial shooting is generally accepted as an appropriate option in specific circumstances (Straight Talk 2015).

Fencing, mustering and other options

Fences can effectively protect small areas of designated high-value and are currently considered an option to protect small areas of concern within the region (NSW Government 2016a; Parks Victoria 2018). Fences are, however, unlikely to alter the size of horse populations and are not useful at a landscape scale. Fencing has been trialled to keep feral horses from entering Namadgi NP from Kosciuszko NP but, as outlined above, proved ineffective.

Mustering involves using a range of ground and aerial methods to move groups of feral horses into a yard. Due to the rough terrain and small population numbers, mustering has not been considered a viable method to control feral horses in Namadgi NP in recent times.

Fertility control agents can be used to manage reproduction rates of horses if the agent can be administered effectively and individual horses can be identified and re-treated when required. Fertility control as a sole management approach for reducing feral horse population size is not an effective strategy (Hobbs & Hinds 2018) and has not been considered an option in the Australian Alps.

Feral horses in the Kosciuszko National Park





4. NAMADGI NATIONAL PARK HORSE MANAGEMENT STRATEGY

4.1 MANAGEMENT GOAL

The natural and cultural values of Namadgi National Park are protected from the impacts of feral horses.

4.2 MANAGEMENT OBJECTIVES

Prevention

1. Prevent horses from:
 - a. entering Namadgi NP from adjoining land
 - b. establishing a population (or populations) in Namadgi NP.
2. Efficiently detect and confirm the presence and impacts of any feral horses in Namadgi NP.

Eradication

3. Using the most effective methods outlined in this Plan, eradicate feral horse incursions as soon as practicable in a humane way that complies with all relevant legislation, codes and standard operating procedures.

Public Support

4. Keep the community well informed of the values of Namadgi NP, the potential impacts of feral horses, and the objectives outlined in this Plan.
5. Maintain ongoing community support for preventing the establishment of feral horses in Namadgi NP.

4.3 MANAGEMENT STRATEGIES

Prevention

1. Maintain a strategic surveillance program to detect horse incursions. This includes:
 - » camera surveillance on movement routes
 - » regular on ground inspections in key areas
 - » aerial surveillance (at least biannually)
 - » encouraging visitors to report sightings.
2. Respond rapidly to verify all reported sightings of horses in Namadgi NP.
3. Seek the cooperation of NSW NPWS to minimise the density of feral horses in areas bordering the ACT.
4. Work with rural landholders and other relevant bodies in the ACT and NSW to prevent horses entering Namadgi NP from adjoining properties. Remove or dispose of stray animals as appropriate.
5. Where appropriate and practical, erect and maintain fences to prevent the movement of horses into Namadgi NP.

Eradication

1. Maintain the operational capability of ACT PCS to respond rapidly to verify feral horse incursions.
2. Eradicate all feral horses in Namadgi NP in accordance with Sharp and Saunders (2012) and other relevant Standard Operating Procedures (see Appendix 1). Depending on conditions (outlined in Section 4.4), the following methods will be considered:
 - a. passive trapping and humane destruction on site
 - b. aerial shooting
 - c. free range ground shooting.The removal of horse carcasses will be considered on a case-by-case basis but carcasses may remain in situ.
3. Develop a monitoring and evaluation program to track the impact of horses on key values and to assess the success of control activities in achieving impact reduction.

Public Support

4. Develop and maintain appropriate interpretative material and support community activities that inform the community about the values of Namadgi NP and the potential impact of feral horses.
5. Keep the public informed about the ACT Government's zero-tolerance policy and management program for feral horse control through, for example:
 - » online resources and social media
 - » print resources
 - » media releases
 - » on-ground activities, meetings and workshops.

4.4 METHODS FOR CONTROL

To be effective, management undertaken to control feral horses in Namadgi NP must remain responsive to changes in cross-border horse movements and feral horse control activities in NSW.

To effectively control feral horses and mitigate their impact in Namadgi NP, their incursion into Namadgi NP must be prevented (strategies outlined above). However, if ACT PCS confirm the presence of horses in the Park, early eradication is critical to ensure populations do not establish, thereby reducing the need to cull large numbers of animals. Initiating control techniques while horse numbers are low increases the chance of being successful in keeping Namadgi NP free of feral horses over the long term.

In line with Sharp and Saunders (2012), the primary control strategies outlined below have been selected to cause the least amount of pain and suffering to horses, while minimising risks to non-target species, people and the environment. All control activities in Namadgi NP will adhere to recommendations outlined in the Model Code of Practice for the Humane Control of Feral Horses (Sharp & Saunders 2012).

The most appropriate control method to be applied will depend on several factors, including:

- site characteristics of the area being occupied by feral horses
- the number of feral horses present and age structure
- season
- available resources
- available infrastructure (e.g. trap yards)
- availability of suitably qualified and experienced shooters.

Prior to any control operation, surveys of feral horse groups will be undertaken to ascertain the number of animals and the age structure of the group, particularly the presence of foals. This information is critical to ensure no young animals are orphaned as a result of control activities.

Passive trapping and humane destruction

Due to animal welfare, operator safety and cost concerns, loading and transporting trapped horses for rehoming is not considered a viable option for broad scale feral horse management in Namadgi NP. Instead, trapping and humane destruction onsite will be carried out in accordance with relevant legislation, COPs and SOPs (as outlined in Appendix 1). In addition to the conditions outlined in these documents, trapped horses will be humanely destroyed as soon as possible and will not be held for longer than three days. To minimise stress to trapped horses, only essential personnel will be present during humane destruction.

Aerial shooting

Aerial shooting, in accordance with relevant legislation COP and SOP (as outlined in Appendix 1), may be considered in specific circumstances where trapping and humane destruction on site is not suitable.

This includes, but is not limited to, trap-shy animals, terrain and vegetation limitations or when horses are causing unacceptable damage to a highly significant or environmentally sensitive area (e.g. a *Sphagnum* bog).

Ground shooting

Ground shooting, in accordance with relevant COP, SOPs and legislation (as outlined in Appendix 1), may be considered in specific circumstances where other methods are not suitable.

Ground shooting will generally not be used to control free ranging horses. A potential exception could be to remove small groups or individual animals in vehicle accessible areas of wide grassy valleys, where, if wounded, an animal can be followed and rapidly dispatched. Ground shooting may be considered to dispatch trap-shy horses gathering around traps, where fatal shots are assured. It is also considered a suitable method for routine euthanasia of feral horses that are incapacitated due to poor health or injury.

4.5 RELEVANT POLICY AND LEGISLATION

It is imperative that all feral horse control is carefully planned, adequately resourced and carried out in a manner that meets nationally accepted standards. Activities implemented in Namadgi NP are subject to a wide range of legislation (Commonwealth and ACT), agreements, and policy guidelines. Appendix 1 lists those with the most relevance to setting management priorities for Namadgi NP, including ensuring the control of feral horses in the Park is undertaken in the most humane, professional and efficient way possible. Importantly, mitigating the impacts of feral horses is critical to meeting the pest animal management objectives outlined in the Namadgi PoM.

4.6 COMMUNITY AND STAKEHOLDER CONSULTATION

The management of feral horses is an issue of considerable interest to many members of the community. The first Feral Horse Management Plan for Namadgi NP was prepared in 2004 in close consultation with key stakeholders. As part of the development of this 2020 Plan, several key stakeholders external to the ACT Government were provided with an opportunity to comment on the strategies outlined above.

This includes the Australian Alps Liaison Committee, Victorian and NSW government representatives, RSPCA Australia and the National Parks Association of the ACT.

The ACT Government liaises or collaborates with stakeholders from NSW regarding several cross-border pest animal issues. Accordingly, neighbouring land holders and managers will be advised of feral horse incursions into Namadgi NP and the ACT Government's intention to carry out feral horse control. Wherever possible, the NSW NPWS will be provided with detailed information of incursions and planned control to facilitate cross-border activities, improve their understanding of horse distribution and movements, and enable their staff to respond to relevant public enquiries. As outlined above, efforts will be made to increase the broader ACT community's awareness and understanding of feral horse issues.



5. MONITORING AND ASSESSMENT OF FERAL HORSE MANAGEMENT IN NAMADGI NATIONAL PARK

As Namadgi NP is currently free of horses, the priority monitoring activity is surveillance of the western border of the Park. Aerial and on-ground methods (as outlined above) will be employed to ensure the early detection and removal of any feral horses entering the Park.

In the case that ACT PCS confirm the presence of feral horses in Namadgi NP, control activities will aim primarily to ensure feral horses do not establish in the Park. If a population or populations of feral horses do become established, a monitoring, assessment and eradication program will be developed. As outlined in ACT Government (2012), this program will include monitoring before, during and after the operational phase of any control activity, and will aim to:

- track changes in the abundance, density and distribution of horses
- track (and effectively mitigate) the impact of feral horses on key values of Namadgi NP
- monitor resource use during control operations
- evaluate the outcome of control operations, including animal welfare
- track the recovery of sensitive sites that have been damaged by feral horses
- understand the impact of feral horses and control activities on visitors to Namadgi NP and the broader community.

Information will be collected through a range of means, including (but not limited to) on-ground assessments, remote camera monitoring, aerial surveys and reports from members of the public. This program will be informed by feral horse monitoring programs established in other jurisdictions. Monitoring during the operational phase of feral horse control will inform decisions to implement complementary or alternative control activities.

The ACT Government recently developed the Conservation Effectiveness Monitoring Program (CEMP) to systematically monitor the condition of ecosystems across the ACT reserve system. The CEMP identifies a range of indicators, including ecological values and stressors (imposed by threatening processes), to measure ecosystem condition and the effectiveness of relevant management programs. The CEMPs for upland systems, including Upland Native Grasslands, Upland Bogs and Fens, and Native Woodlands, are yet to be finalised but may provide a framework to monitor environmental changes in response to feral horse incursion and control activities, if required.



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APPENDIX 1.

LEGISLATION AND POLICY RELEVANT TO MANAGING FERAL HORSES IN NAMADGI NATIONAL PARK

Commonwealth Legislation

COMMONWEALTH ACT	DESCRIPTION
Australian Capital Territory (Planning and Land Management) Act 1988	→ Sets land use guidelines for Namadgi NP including water resource sub-catchments, and policies for their management.
Environment Protection and Biodiversity Conservation Act 1999	→ The Australian Government's key environmental legislation that provides a legal framework to protect and manage flora, fauna, ecological communities and heritage places. It identifies matters of national environmental significance (MNES) and enables the listing of threatened species and ecological communities. For Namadgi NP, the MNES include: the Ginini Flats Wetlands, Commonwealth listed threatened ecological communities and species, migratory bird species and National Heritage as part of the Australian Alps National Parks and Reserves listing.

ACT Legislation

ACT	DESCRIPTION
Nature Conservation Act 2014	<p>→ Provides for the protection of biodiversity and management of national parks and nature reserves within the ACT.</p> <p>→ Provides for the preparation of Action Plans for threatened species and threatened communities, several of which are located within Namadgi NP.</p>
The Planning and Development Act 2007	→ Instrument under which Public Land is reserved. Requires management plans for all public land areas identified in the Territory Plan 2008 (the ACT's key statutory planning document).
Pest Plants and Animals Act 2005	<p>→ Provides for declaration and management of pest plants and animals. The Pest Plants and Animals (Pest Animals) Declaration identifies the invasive animals declared as pests in the ACT.</p> <p>→ Feral horses are not currently declared a pest animal under this Act; however, the Minister for Environment and Heritage has expressed an intention to do this (ACT Government 2019b). Proposed amendments to the Pest Plants and Animals (Pest Animals) Declaration include wild horses (ACT Government 2019i).</p>
The Stock Act 2005	→ Provides the process and legal requirements when impounding and disposing of trespassing stock (including horses).
Environment Protection Act 1997	→ Provides for environmental protection through measures aimed principally at preventing activities that could cause environmental degradation and risk of harm to human health.
Animal Welfare Act 1992 (and uncommenced amendments of Animal Welfare Legislation Amendment Act 2019)	→ Provides for the promotion of animal welfare. The Animal Welfare Legislation Amendment Act 2019 strengthen protections for animal welfare, recognising the sentience of animals and expanding the definition of 'cruelty' to include doing, or not doing something that is likely to cause injury, pain, stress or death. The 2019 Act includes offences related to inappropriate confinement and transport, and the failure for someone in charge of an animal to stop the animal escaping from premises.
Heritage Act 2004	→ Establishes a system for the recognition, registration and conservation of places and objects that have natural and cultural (including Aboriginal) significance.

ACT policy documents and guidelines

ACT POLICY	DESCRIPTION
ACT Pest Animal Management Strategy 2012-2022 (ACT Government 2012)	→ Provides a framework for managing the impacts of pest animals across the ACT. It includes information on the impacts of feral horses on subalpine habitat and notes several management and monitoring options to prevent the establishment of horses in Namadgi NP.
Namadgi National Park Plan of Management 2010 (ACT Government 2010)	→ Key document outlining the values and threats to Namadgi NP, and the primary objectives and principles for managing the Park. The control of feral horses is critical to meeting key objectives outlined in this plan.
ACT Nature Conservation Strategy (ACT Government 2013a)	→ Outlines a vision for nature conservation in the ACT, including a reduction in threats to biodiversity from pest animals through implementation of the Pest Animal Management Strategy. It identifies the five most sensitive ecosystems in the ACT, all of which occur (at least in part) in Namadgi NP.
ACT Aquatic and Riparian Conservation Strategy (ACT Government 2018a)	→ Guides the conservation of aquatic and riparian areas and component species (including threatened species) in the ACT. Riparian areas within Namadgi NP that are covered in the Strategy include those associated with Cotter, Naas, Orroral and Gudgenby rivers. The Strategy includes action plans for threatened species associated with aquatic and riparian systems within Namadgi NP.
ACT Native Woodland Conservation Strategy (ACT Government 2019c)	→ Guides the management and conservation of lowland and subalpine woodland in the ACT. Most of the ACT's subalpine woodland is protected in Namadgi NP and patches of box-gum woodland are also present in Namadgi NP. → The Strategy includes action plans for woodland-associated threatened species and threatened ecological communities that are located within Namadgi NP.
ACT Native Grassland Conservation Strategy (ACT Government 2017a)	→ An approach to the conservation of grasslands across the ACT, including significant areas of high value Natural Temperate Grassland within Namadgi NP. → The Strategy includes action plans for grassland-associated threatened species and threatened ecological communities that are located within Namadgi NP.
ACT Climate Change Strategy 2019-2025 (ACT Government 2019a)	→ A strategy to deal with the effects of climate change, noting that the impacts of changing climate are already occurring including on sensitive ecosystems such as high country bogs and fens. Actions include identifying opportunities to increase resilience of terrestrial and aquatic habitats threatened by climate change.
Water Strategy 2014-44: Striking the Balance (ACT Government 2014)	→ Identifies strategies and actions to guide water management in the ACT. A key outcome is to protect the ecological values of aquatic ecosystems across the ACT.
Animal Welfare and Management Strategy 2017-2022 (ACT Government 2016)	→ A consolidated approach to improve outcomes for animal welfare and management in the ACT. One outcome is to ensure pest species are managed in a humane and ethical manner.
ACT Natural Resources Management Plan 2009 (currently being reviewed)	→ Sets the strategic framework for natural resource investment in the ACT and sets targets for addressing issues related to the community, land, water and biodiversity. Preventing further introductions of pest plants and animals is identified as a key challenge to address.
Ginini Flats Wetland Complex Ramsar Site Management Plan (ACT Government 2017b)	→ Sets management guidelines and objectives and provides detail on management actions to conserve the wetland and avoid or minimise the impact of threats. The plan identifies the need to minimise the impact of invasive species, including feral horses.

ACT POLICY	DESCRIPTION
Threatened species Conservation Advice	<p>→ The following Conservation Advice have been prepared for threatened species present in Namadgi NP:</p> <ul style="list-style-type: none"> » Hooded Robin (ACT Government 2019f) » Little Eagle (ACT Government 2019g) » Northern Corroboree Frog (ACT Government 2019h)
Threatened species Action Plans	<p>→ The following Action Plans have been prepared for threatened species and threatened communities present in Namadgi NP:</p> <ul style="list-style-type: none"> » Brush-tailed Rock-wallaby (ACT Government 2015) » Smoky Mouse (ACT Government 2013b) » Spotted-tailed Quoll (ACT Government 2019d) » Bogs and Fens (in draft).

Codes of Practice

CODE	DESCRIPTION
Code of practice for the capture and marketing of feral animals in WA (WA Government 2003)	<p>→ Developed for WA, it provides guidelines to promote improved welfare for feral livestock, including feral horses, captured for domestication or abattoir slaughter, or that are killed in control programs or field harvesting.</p>
Code of practice for the humane control of feral horses (Sharp & Saunders 2012). A revision of Sharp and Saunders (2004).	<p>→ Provides information on best practice management, control strategies, species biology and impact, and the humaneness and cost effectiveness of control methods. This COP has been adopted nationally.</p> <p>→ Several Standard Operating Procedures have been developed to support this COP, including:</p> <ul style="list-style-type: none"> » Ground shooting of feral horses (Sharp 2011a) » Aerial shooting of feral horses (Sharp 2011b) » Mustering of feral horses (Sharp 2011c) » Trapping of feral horses (Sharp 2011d) » Methods of euthanasia (Sharp 2016).
COP for the Capture and Transport of Feral Horses (English 2001)	<p>→ Developed as part of a report on the management of feral horses in national parks in NSW. It aims to improve the humaneness of feral horse mustering and transport, and to minimise undue stress or injury during these operations.</p>
Animal Welfare (Land Transport of Livestock) Mandatory Code of Practice 2018 (No. 1) (ACT Government 2018b) and associated Australian Animal Welfare Standards and Guidelines - Land Transport of Livestock (AHA 2012)	<p>→ Based on scientific knowledge, current practice and community expectations, this document describes the standards and guidelines to ensure the welfare of livestock (including horses) during transportation.</p>

International and national agreements

AGREEMENTS	DESCRIPTION
Japan-Australia (JAMBA) and China-Australia Migratory Bird Agreements (CAMBA)	→ Commit governments to protect listed migratory and threatened bird species and their habitats. Lathams Snipe, which over-winters at Ginini Flats and other subalpine wetlands, is listed under the JAMBA and the CAMBA.
Ramsar Convention on Wetlands	→ The framework for national action and international cooperation for the conservation of wetlands and their resources. The Ginini Flats Subalpine Bog Complex was listed in 1996. The ACT Government must take steps to ensure that its ecological character is maintained.
Australian Alps National Parks Co-operative Management Agreement	→ Memorandum of Understanding between the Commonwealth, ACT, NSW and Victorian governments to guide cross-border cooperation to protect the area's special character and guide best-practice management.

