



NSW National Parks
and Wildlife Service

WILD HORSE MANAGEMENT PLAN

for the Warragamba Special Area
within Blue Mountains National Park

March 2007



Photo: Grass trees over Lake Burragorang. Ian Brown. DEC-PWD

Department of Environment and Conservation NSW



Wild Horse Management Plan for the Warragamba Special Area, Blue Mountains National Park

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Executive Summary

The Warragamba Wild Horse Management Plan has been developed in accordance with recommendations and a code of practice for wild horse management prepared by Dr Tony English (2001) in response to increasing wild horse numbers in the Warragamba Special Area.

The Warragamba Special Area surrounds and protects the water storage facility of Lake Burragorang. Lake Burragorang is the primary water source for the City of Sydney. The City of Sydney currently supports a population of approximately 4.5 million people. The Warragamba Special Area is jointly managed by the NSW Department of Environment and Conservation (DEC) Parks and Wildlife Division (PWD) and the Sydney Catchment Authority (SCA).

The DEC and SCA have a legislative responsibility to protect the water quality of Lake Burragorang and to protect the natural and cultural heritage within its reserves, which includes minimising the impact of introduced species, including horses.

In managing Warragamba Special Area, the DEC and SCA have the following goals:

1. High quality raw water in the water storage. A fundamental ingredient in the provision of high quality water supplied to the tap in Sydney is the quality of raw water in the catchment streams and storage. High quality raw water requires less treatment in the treatment plants and this reduces both costs and potential health risks from increased chemical usage
2. Ecosystem integrity and health throughout the Special Area. Ecological systems of the Warragamba Special Area provide a range of functions crucial to the maintenance of high water quality

The area covered by the Warragamba Wild Horse Management Plan includes Schedule 1 and Schedule 2 (*Sydney Water Catchment Management Act 1998*) areas around Lake Burragorang. The area covers more than 258,400 ha and supports a diverse range of vegetation including dry sclerophyll forests and woodlands, broad leaved rainforests and sub alpine forests. A wide diversity of species are known to occur in the area including 24 threatened fauna and 21 threatened flora species (SCA & NPWS, 1999).

Horses impact on the natural environment by establishment of trails, damage to stream and river banks, trampling of sensitive habitats, damage to native vegetation, and accelerated soil erosion, which can increase sedimentation. Horses also have the potential to carry pathogens, which may affect human health.

Prior to 2002, SCA and the then NSW National Parks and Wildlife Service (NPWS) destroyed 304 horses within the Warragamba Special Area. In 2002, a new approach to horse management was developed for NSW National Parks using recommendations derived from a report commissioned by the Minister for the Environment. This report developed recommendations of best management practice for the management of wild horses, such as advocating community consultation and the development of a horse management plan for control programs on lands administered by the Department.

In 2004, the Blue Mountains Region of DEC (PWD) formed the Warragamba Wild Horse Management Steering Committee and commenced the development of a management plan for horses in the Warragamba Special Area.

The Steering Committee is comprised of 12 members, representing DEC (PWD), DEC Regional Advisory Committee, Rural Lands Protection Board, RSPCA, SCA, the local community, National Parks Association, and the Brumby Protection Group.

1. Introduction

The Warragamba Special Area (Figure 1) consists of the stored waters of Lake Burragorang and adjacent lands. It extends from the township of Warragamba in the north-east, to Buxton in the south-east, Wombeyan caves in the south-west and to Narrow Neck and the Wild Dog Mountains in the north-west. The Special Area covers approximately 258,400 ha and comprises about 28% of the total hydrological catchment of Lake Burragorang. Since its original proclamation as a water catchment in 1942, approximately 75% of the Warragamba Special Area has been gazetted National Park or State Recreation Area under the *National Parks and Wildlife Act 1974* (NPW Act).

Lake Burragorang, impounded by Warragamba Dam, is the main water supply for Sydney and is a source of drinking water for the lower Blue Mountains. Recreational activities within the Warragamba Special Area are limited to protect water quality. To minimise the risk to water quality, the Special Areas, established under the *Sydney Water Catchment Management Act 1998* are classified into two levels of access control:

Schedule 1 Entry is not allowed to land surrounding the water storages.

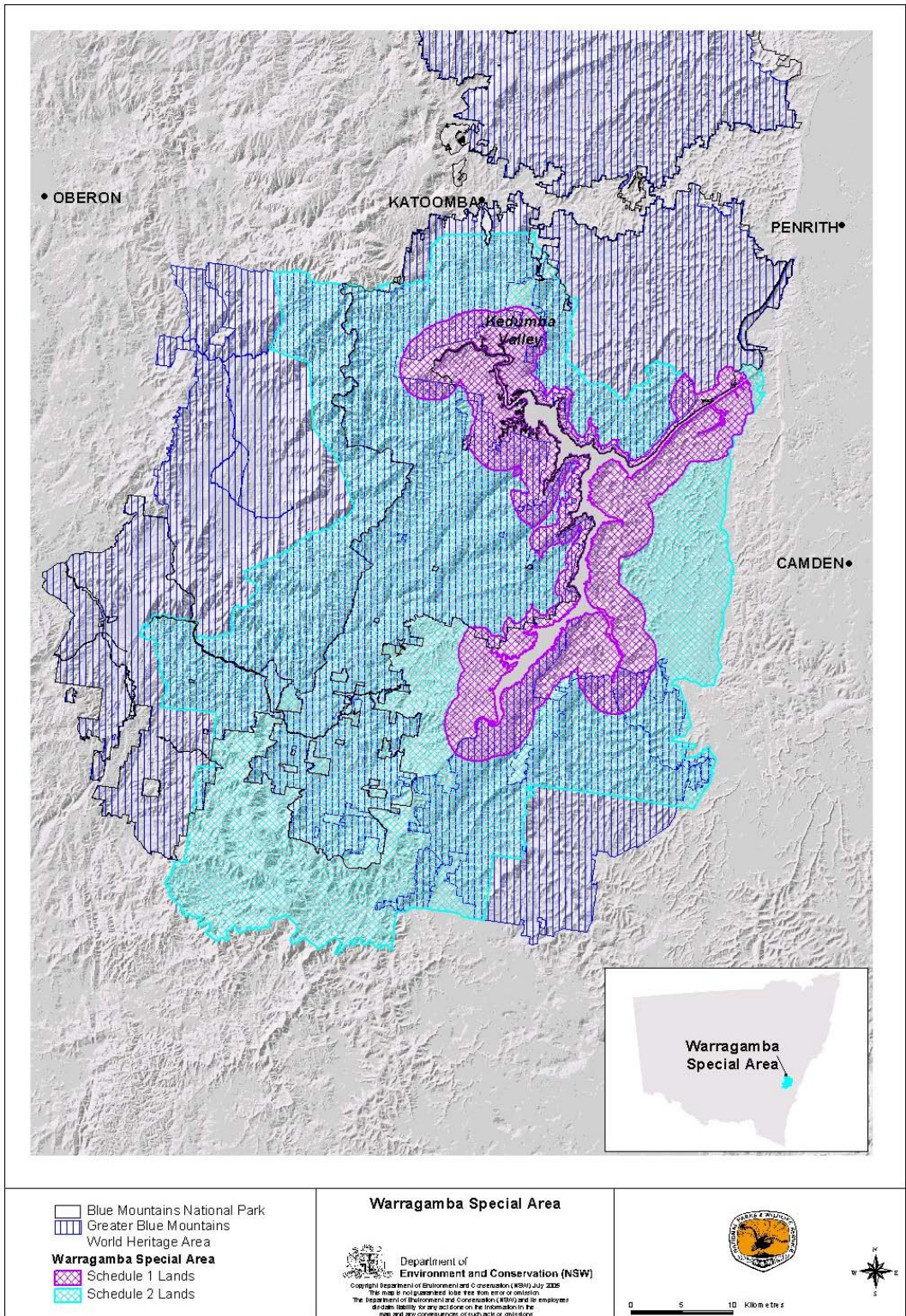
Schedule 2 Activity restrictions apply to lands adjoining Schedule 1 land. Only activities such as camping and bushwalking are permitted within this area.

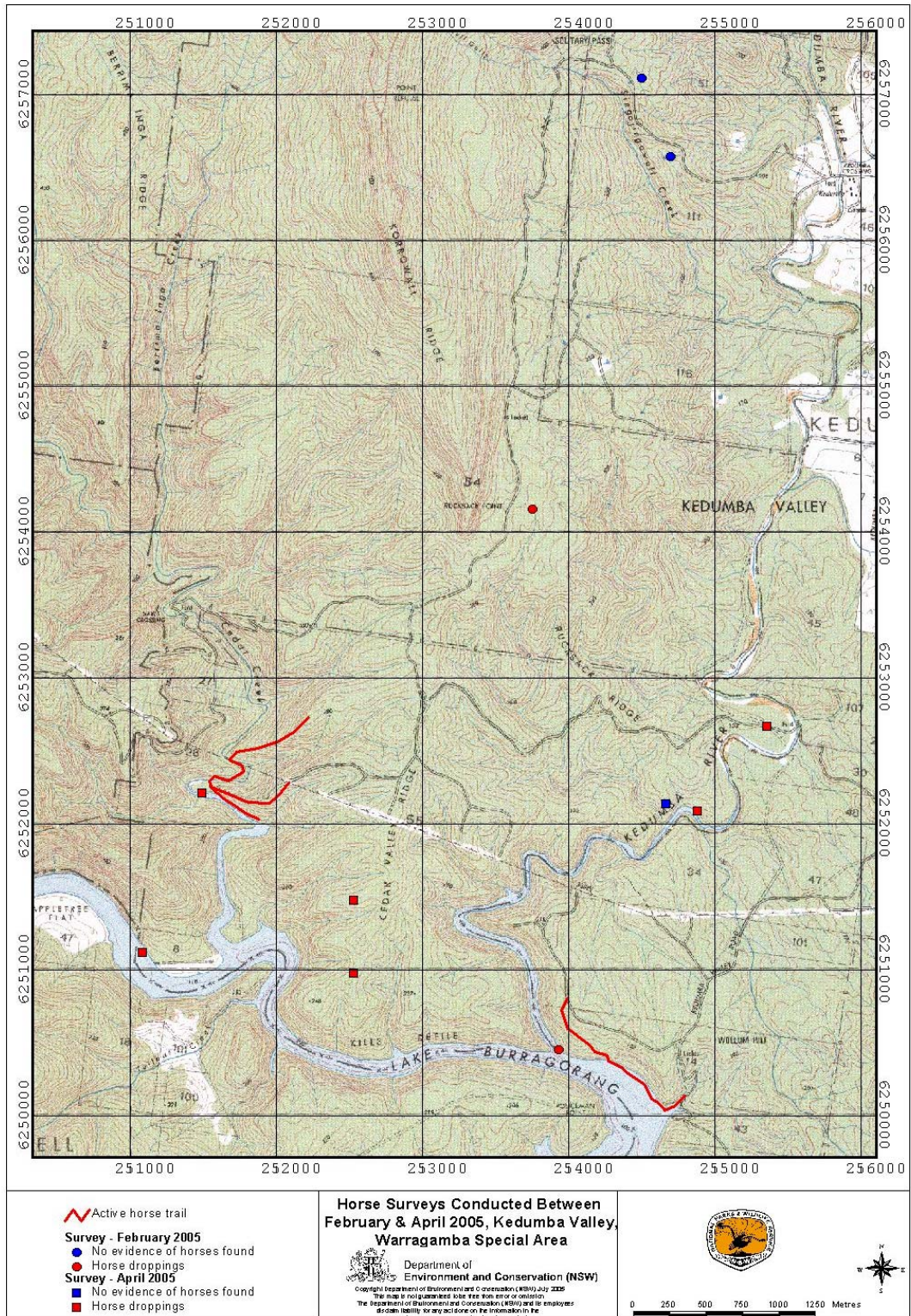
Preliminary surveys have shown that horse activity is concentrated in the Kedumba, Cedar and lower Cox's River areas of Warragamba Special Area, within Blue Mountains National Park (Figure 2). This section of the park is part of the traditional lands of the Gundungurra nation, and includes numerous Aboriginal and historic cultural heritage sites. The Blue Mountains National Park was first reserved in 1959, and has undergone extensive additions since that time. This area also forms part of the Greater Blue Mountains World Heritage Area, which was inscribed on the World Heritage List in November 2000. Some areas of the Warragamba Special Area are declared Wilderness under the *Wilderness Act 1987*.

The Blue Mountains National Park contains a varied and spectacular natural landscape, which is recognised nationally and internationally. The park has a high value for nature conservation, covering an extensive variety of ecosystems and natural communities, and conserving an outstanding diversity of species, including threatened and endemic species.

This plan includes:

- An historical overview of the issue of wild horses in Warragamba Special Area.
- A description of the significance of the Warragamba Special Area and why it must be protected.
- An overview of the research available about the impacts of horses on catchment quality and nature conservation.
- The role and responsibilities of the DEC and how legislation and relevant codes relate to this issue.
- How the community has been involved in developing this plan.
- The objective of this plan and an examination of the range of control methods currently available for managing wild horses.
- A description of how the recommended strategy for managing wild horses will be implemented and reviewed.





2. Objective

The objective for this plan was developed by the Warragamba Wild Horse Management Steering Committee.

The primary objective for a Horse Management Plan for the Warragamba Special Area is:

To produce a wild horse management plan for the control of wild horses in the Warragamba Special Area that develops management actions that do not cause a significant impact on the environment, endeavours to maximise the humane treatment of horses at all times, and can be implemented within 2 years in order to ensure the population is initially stabilised, with the intent of complete removal within 5 years.

Further guiding principles are to ensure:

- continued community involvement in the process.
- all control programs are permissible under the National Parks and Wildlife Act and other relevant planning instruments, legislation and guidelines.
- all operations are carried out to maximise the safety of DEC (PWD) staff, contractors, volunteers and the public.
- removal methods are open to independent audit and are evaluated and modified as appropriate.
- environmental impacts which may occur as a result of the horse removal trials does not exceed the long term impact of not removing horses.

3. Background

3.1 Historical overview of horses in the Warragamba Special Area

In Australia, horses are generally known by three terms brumbies, wild horses and feral horses. The term brumby is attributed to Sergeant James Brumby's horses, which were left to run loose on his land in NSW when he was transferred to Tasmania in the 1830's. From then on horses running loose began to be called brumbies (Heritage Working Party, 2002). A 'feral' animal is defined as an exotic or non-native animal originally introduced for domestic purposes, which has survived in the wild (although some feral animals, eg foxes and rabbits, were not introduced for domestic purposes). Horses can become feral if they are left to fend for themselves (Dobbie, Berman and Braysher, 1993). A 'wild' animal is defined as living in a state of nature, as animals that have not been tamed or domesticated. The use of the term feral horse, wild horse or brumby is often contentious depending on personal views on these animals. For the purposes of this report the term wild horse will be used.

Horses have been in Australia since the arrival of the First Fleet in 1788. The First Fleet horses originated from Cape Town, South Africa and are believed to have been Cape horses or Barbs. The seven horses comprised three mares, a stallion, a colt and two fillies. Subsequently, a steady stream of horses arrived at the colony (Heritage Working Party, 2002). In eastern Australia horse numbers increased massively from 14,000 in 1830 to 160,000 in 1850 and Australia now has the largest population of wild horses in the world, more than 300,000 (Dobbie *et al*, 1993). The Australian environment provides many favourable conditions for horses, with drought providing the only real check on horse populations.

In the Warragamba Special Area, horses and cattle arrived with the European settlers in the 19th century. Pastoral settlements in the Burragorang expanded from those existing around Camden and the Oaks from 1824 onwards. Portions of land within the Kedumba Valley were sold to the Kedumba Pastoral Company in 1951, which continued to run cattle and sheep in the area. Populations of horses became established as animals escaped or were released into the wild. With the pastoral use of Kedumba Valley, large portions of land to the east of Kedumba River were cleared (Edds, 2001).

Pit ponies were used to support coal mining operations in the Megalong, Jamison and Kedumba Valleys in the 1870's. The mining operations ceased in the early 1900's (Eardley, G.H and Stephens E.M, 1974), as the Blue Mountains grew as a tourist destination. Some community members believe the wild horses in Kedumba Valley are related to the pit ponies.

In 1993, two representatives of the Waler Horse Society visited the Kedumba Valley to observe the genetic and physical condition of the wild horses, and commented that they were interbred and a poor standard of brumby (pers.comm. SCA Officer).

Prior to the introduction of the NPWS *Horse Management Policy*, substantial control programs had been undertaken to manage horse numbers. Between 1988 - 2002 the SCA and NPWS destroyed a total of 304 horses in aerial control programs. In 2002, land in the Warragamba Special Area was transferred from SCA to NPWS as an addition to Blue Mountains National Park. At this time, the ban on aerial shooting of horses, in accordance with the horse management policy was already being applied throughout NSW national parks. Therefore there has been no control of wild horses in the Warragamba Special Area since 2002.

The current horse population is estimated to be approximately 30-50 animals. Recruitment of three foals has been recorded since 2003.

3.2 Significance of the Warragamba Special Area

The Warragamba Special Area contains lands that form an integral link in a system of reserved lands that constitute the Greater Blue Mountains World Heritage Area. The unique natural features of parts of the Special Area, protected by its proclamation as a water supply catchment area since 1942, have led to areas being declared as Wilderness (*Wilderness Act, 1987*). The variation in topography, altitude, aspect and micro-climate has resulted in a diversity of habitats for native plants and animals including a number of threatened species and communities whose distributions are limited. This environment, like the rest of the Australian continent, has evolved without the presence and impacts of large, hard-hoofed animals.

The Warragamba Special Area is one of outstanding botanical diversity. A vegetation survey (NPWS, 2003) recorded over 1,400 native species. It supports perhaps the highest diversity of Eucalypt species in the world for an area of this size, with 75 species recorded within the Warragamba Special Area. This represents 75% of all Eucalypt species included within the Greater Blue Mountains World Heritage Area.

The Schedule 1 and 2 lands of the Warragamba Special Area surround the water storage for the greater Sydney region. These lands comprise an extensive and contiguous band of bushland, and are the first and most critical barrier in protecting water quality. They act as a filtration system for water entering water storages by removing some nutrients and other substances, which could affect water quality. The greater the integrity and health of the ecosystems in the scheduled lands, the more effectively they act as a barrier and filter.

3.3 Horses and environmental impacts

Large hard hoofed animals such as horses are not adapted to the Australian environment, causing a series of detrimental impacts. A summary of the literature on the effects of horses is listed below.

3.3.1 Existing studies of the impact of horses

The environmental impact of wild horses has been studied in central Australia (Berman & Jarman, 1988), the southern highlands of south-eastern Australia (Drying, 1990) and Tasmanian alpine environments (Whinam *et al*, 1994). These studies and research from overseas identify the key impacts associated with horses as accelerated erosion resulting from horse traffic, vegetation change caused by trampling and increased weed dispersal. The degree of environmental impact however is greatly dependent on site characteristics including climate (such as heavy rain), vegetation, terrain, geology, and frequency of horse movement.

Drying (1990) found that areas in the southern highlands, which were frequented by horses had fewer native plants. Weeds were more common along horse tracks, and grazing by wild horses along stream banks and trampling at crossings caused bank erosion and stream siltation.

It is evident from previous investigations that horses have the capacity to disperse viable propagules of both woody weeds and a range of herbaceous weeds. Horses are known to move seeds on their hooves, skin and in their digestive tract. Sweeting and Morris (1991) demonstrated that horses will pass high levels of viable seed up to 4 days after ingestion and for some species viable seed can be passed up to 10 days after ingestion. Horse manure provides a high nutrient medium for the germination and establishment of these seeds. A total of 33 non-woody species has been confirmed from horse manure in studies by Weaver & Adams (1996), and Whinam *et al* (1994).

Two studies have been undertaken on the environmental impact of horses in the Guy Fawkes River National Park. A study by Andreoni (1998) found extensive erosion associated with horse movement with the majority of erosion commonly occurring on steeper slopes in woodland areas. A study by

Taylor (in press) of horse manure collected from the Guy Fawkes River area found a number of weed species survived gut fermentation and germinated when placed in a green house environment.

A summary of the environmental impacts, based on the above literature, associated with the presence of horses is listed below:

- Horse tracks (hooves disturb the soil), horse pads (paths created by repeated travel along certain routes), dung and urine scalds can accelerate erosion by removal of vegetation and disturbance to the soil.
- Trails can become severely eroded, particularly in steep areas, as water funnels down slopes unchecked.
- Horses are large heavy animals with only a small area of the animal coming into contact with the ground. The result of the compression effects is reduced aeration, water infiltration, pore space and water content of soils.
- Plants are damaged by grazing, trampling and creating wallows, or areas where they roll on the ground. Eventually the vegetation is killed and the area becomes bare and subject to erosion and the invasion of weed species.
- Water supplies depleted, water holes fouled and soaks dug in sandy creekbeds.
- Wet areas such as bogs and wetlands attract horses, yet they are very susceptible to damage by trampling. As a track into the bog becomes incised, the bog may be completely drained.
- Restriction of the distribution of native fauna through the removal of food and shelter, eg. collapse of wildlife burrows
- Seed dispersal of native and introduced species' either in dung or in manes and tails. Soil disturbance is a major source of weed invasion.
- Visual and auditory changes to the Australian bush (horses being present and the sounds of whinnying and hoof-beats).

3.3.2 Impacts of horses within Warragamba Special Area

There has been no specific research into the impacts of horses in Warragamba Special Area. To acquire quantifiable evidence of horse damage locally, would require a carefully conducted trial over several years. Due to the lack of an experimental trial to determine the specific impacts related to the presence of wild horses in the Warragamba Special Area, the precautionary principle should be adopted, especially as the area is used as a drinking water storage. Existing research on horses and their impacts (Section 2.3.1) can be extrapolated to the Warragamba Special Area.

It is difficult to quantify damage caused by wild horses due to the variety of other coexisting factors that impact on the environment, such as runoff, drainage and sewerage discharges from agriculture, mining and urban development adjacent to the Warragamba Special Area. Therefore all factors must be managed in order to offer the best protection for the catchment, water quality and the conservation values of the National Park. Horse management is one of a range of pest management strategies, which are part of broader land management actions, including fire, soil erosion, and access management.

The soils of the Kedumba Valley, where horse activity is concentrated, are described as shallow to moderate deep well drained yellow podsollic soils and yellow earths on crests and sideslips. Hard setting topsoils that can become highly degraded from water erosion. They are extremely acidic and are of low fertility. Most soil types within the Warragamba Special Area are unstable when disturbed. They are highly susceptible to mass movement such as slides and rockfalls as well as wind and water erosion. These soils are susceptible to disturbance caused by horse tracks and pads. This could result in vegetation removal, erosion or soil compression.

Horses are selective grazers. Although there have been no studies on the diet preferences of wild horses in the Warragamba Special Area, as selective grazers of grasses and forbs, it can be expected that they would impact on vegetation structure over time if their numbers are unchecked. They

mainly eat grasses but will also feed on roots, bark, buds and fruit. (Mayes and Duncan, 1986; Pratt *et al*, 1986)

The impacts observed by field staff working in the Warragamba Special Area include:

- horses wallowing in the water storage;
- horses becoming bogged in the water storage, resulting in death;
- pads and tracks on foreshore, creeklines and adjoining slopes;
- establishment of wallows (rolling area), and stallion dung mounds.



Horse tracks leading to vegetation removal and compaction of soil (SCA, 1999)



Removal of horse from Lake Burragorang (SCA, 1998)

Ingestion of drinking water contaminated with *Cryptosporidium parvum* can lead to symptoms of severe diarrhoea and stomach problems. This parasite is carried by cattle, pigs and sheep. In the US, a recent study (Cole *et al*, 1998) found evidence of horses carrying the *Cryptosporidium parvum* parasite.

Horses have also been observed eating the bark of Melaleuca trees (paperbarks) (pers.comm. SCA Officer). In a recent vegetation survey (NPWS, 2003) the dry alluvial paperbark woodlands were identified as a regionally significant vegetation community as they were restricted in their distribution, and have not been described from outside the Warragamba Special Area.

There have also been reported incidents of stallions acting aggressively towards bushwalkers and field staff (pers.comm. SCA Officer).

3.4 Legislative framework

There is a range of legislation and guidelines, which provide the framework for the management of horses within Warragamba Special Area (Table 1). These include:

Table 1: Legislation and guidelines relevant to wild horse management

<i>National Parks and Wildlife Act 1974</i>	<ul style="list-style-type: none"> • Establishes the National Parks and Wildlife Service • Provides for establishment and management of conservation reserves and the protection of native flora and fauna and Aboriginal relics. • Requires the NPWS to carry out works considered necessary for the management or maintenance of NPWS lands. This includes management of feral species. • Requires that a Plan of Management be prepared for each reserve. The NPWS is required to give effect to plans of management.
<i>Sydney Water Catchment Management Act 1998 & Regulation 2000</i>	<ul style="list-style-type: none"> • Establishes the Sydney Catchment Authority • Provides for the management, protection and regulation of certain activities and functions of authorities within the Special Areas and in SCA's area of operations
<i>Threatened Species Conservation Act 1995</i>	<ul style="list-style-type: none"> • Aims to conserve biodiversity by protecting and encouraging the recovery of threatened species, endangered populations and endangered ecological communities in NSW.
<i>Wilderness Act 1987</i>	<ul style="list-style-type: none"> • Wilderness areas must be managed to protect or restore their unmodified state in the absence of significant human interference and permit opportunities for appropriate self-reliant recreation.
<i>Environment Planning and Assessment Act 1979</i>	<ul style="list-style-type: none"> • Regulates land use within NSW. • Requires the DEC to consider the environmental impacts of management programs. • The framework used to carry out this assessment is a review of environmental factors (REF). Where a significant effect is likely, the Act requires the preparation of an environmental impact statement (EIS). Where there is likely to be a significant effect on threatened species, populations or ecological communities, a species impact statement is required.
<i>Prevention of Cruelty to Animals Act 1997</i>	<ul style="list-style-type: none"> • Prohibits cruelty to animals. • Imposes obligations for persons in control of an animal to provide among other things food, drink, shelter, and veterinary care for the animal under their control. This is relevant where an animal's movement is restricted, for example in a trap yard.
Special Areas Strategic Plan of Management	<ul style="list-style-type: none"> • Identifies the issues, management principles, and major goals related to management of the Special Areas. • Strategies include, SCA and NPWS prepare and implement threat abatement, species recovery and pest management strategies so as to protect ecosystem health and integrity and improve water quality.
Blue Mountains National Park Plan of Management	<ul style="list-style-type: none"> • The plan describes the natural and cultural values of the park, management objectives and appropriate management practices. • For the purpose of developing management plans and programs, the NPWS has adopted the International Union for the Conservation of Nature and Natural Resources Guidelines for Protected Area Management (IUCN, 1994) which defines a national park as: "a natural area of land/or sea, designated to (a) protect the ecological integrity of one or more ecosystems for present and future generations, (b) exclude exploitation or occupation inimical to the purposes of designation of the area, and (c) provide a foundation for the spiritual, educational, recreational and visitor opportunities, all of which must be environmentally and culturally compatible". • Plan of Management Action includes: Introduced plants and animals will be controlled, and control of wild horses is identified as high priority
Pest Management Plans	<ul style="list-style-type: none"> • Removal of wild horses from Warragamba Special Area has been identified as high priority under the Pest and Weed Management Operational Plan for Warragamba and Blue Mountains Special Areas 2004-2009

3.5 The biology of horses

On average 20 % of a wild horse population dies each year mainly from drought, poisonous plants and parasites. Few wild horses reach 20 years of age. The approximate rate that horse numbers can increase is 20-25% per year. Horses normally breed during spring and summer with foaling concentrated over the same period (Dobbie and Berman, 1992). Females reach sexual maturity in 12 to 24 months and once mature are capable of producing a foal each year.

Horses feed between 51 per cent to 75 per cent of the time (Mayes and Duncan, 1986; Pratt *et al*, 1986) and they can tolerate a wide variety of foods and grazing patterns. They prefer to feed in areas with the greatest concentration of high quality green food and when this is sparse they seek out perennial herbaceous plants (green or dead). They mainly eat grasses but will also feed on roots, bark, buds and fruit.

The home range of a wild horse depends on the type of country and the season. In central Australia their home range is about 70 square km, similar to that of the wild horses of North American deserts. Well-defined sociological groups can be identified but these are subject to continual natural disturbance, eg. from young stallions seeking to usurp older leaders (Dobbie *et al*, 1993).

Wild horses are highly mobile and movement corridors can be readily identified between suitable grazing sites in montane areas (Drying, 1990). Horses resist being forced out of their home area, whether by aerial or ground mustering (Dobbie and Berman, 1992).

3.6 Animal Welfare

Ensuring animal welfare is maximised during implementation of the management strategy is critical to meeting the objective of this Plan. RSPCA policy relating to introduced animal control programs recognises that these animals require the same level of consideration for their welfare as that given to domestic and native animals. As stated in Section 3.4, it is a legislative responsibility under the *Prevention of Cruelty to Animals Act 1997* to provide adequate care for an animal under a person or authority's control.

A code of practice for the capture and removal of wild horses has been prepared by Dr Tony English as part of the Terms of Reference for a review of management of wild horses in National Parks in NSW. This code of practice will be adhered to in relation to all horse management activities conducted within the Warragamba Special Area (See Section 7 for further detail). RSPCA inspectors have committed to conducting an independent audit of the capture, handling, transport, or shooting of horses, implemented in accordance with the management plan.

4. The public consultation process

In recognition of the sensitivity of this topic and level of interest from the community, an integral part of this planning process was the contribution of ideas, advice and support from the community.

4.1 The Warragamba Wild Horse Management Steering Committee

The Warragamba Wild Horse Management Steering Committee (WWHMSC) was established to provide advice and contribute to the development for the Warragamba Wild Horse Management Plan.

The Steering Committee is composed of members representing key stakeholder groups and community interests. Groups represented include the:

- NPWS Blue Mountains Region Advisory Committee;
- National Parks Association (NPA);
- Royal Society for Protection and Care of Animals (RSPCA);
- Brumby Protection Group;
- Rural Lands Protection Board Veterinarian;
- Sydney Catchment Authority;
- Community members and local landholders; and
- NPWS staff.
- Blue Mountains Conservation Society.

The following organisations declined the invitation to be represented on the Steering Committee: Animal Welfare League and the Australian Horse Alliance.

The terms of reference for the Steering Committee are:

- WWHMSC is an advisory committee to DEC (PWD) Blue Mountains Region. The role of the advisory committee is to make recommendations on the management of wild horse populations in the Warragamba Special Area. DEC will be the final decision making authority as to what management actions are implemented for the removal and control of wild horses from Warragamba. The WWHMSC will continue to exist through the operational phase of this plan and DEC will continue to consult with the Steering Committee until the objectives of the plan have been met.
- The environmental impact of wild horses in the Warragamba Special Area is unacceptable. The removal of all horses from Warragamba Special Area has been given a high priority under the pest and weed operational plan for the Warragamba and Blue Mountains Special Areas 2004-2009.
- All removal techniques employed to manage wild horses from Warragamba will abide by humane codes of practice for the capture and transport of wild horses. DEC and WWHMSC will endeavour to maximise the humane treatment of horses at all times.
- DEC and WWHMSC will ensure that capture, transport and destruction methods to manage wild horses do not cause a significant impact on the environment.
- DEC and WWHMSC will ensure that all operations are carried out to maximise the safety of staff, contractors and the public.

4.2 Community consultation

NPWS has sought to provide information to the community and to offer involvement in the planning process through the following initiatives:

- The Wild Horse Management Plan for the Warragamba Special Area was put on public exhibition. Submissions regarding this plan were collated and assessed by the committee.
- Information sheets developed for distribution to the public and on the NPWS web site.
- Coverage of the issue was advertised in metropolitan and regional media.

All of these initiatives were valuable in identifying the range of values held by people and the range of issues that need to be considered in developing a management plan.

5. Assessment of potential horse management methods

Several methods of horse management were assessed by the Warragamba Wild Horse Management Steering Committee. The advantages and disadvantages of each management method were identified and they were assessed against agreed criteria:

- Animal welfare/ humaneness
- Cost/effort
- Effectiveness/ timeframes
- Environmental impact
- Occupational safety
- Public perception

Initially, a coarse method of scoring the various methods against the agreed criteria was developed to provide an indication of the most suitable method. This table is attached as Appendix 1.

When the various methods were fully explored, it was apparent that the most suitable options for the Warragamba Special Area, which met the agreed criteria were:

1. Aerial Shooting
2. Ground Shooting
3. Capture, removal out of the park and re-homing

It was from these methods that a preferred option was identified. The discussion of each method assessed by the Steering Committee is outlined below.

5.1 Fertility control

Several techniques of fertility control are available or are under development and they vary in cost and effectiveness. Alternatives include surgical desexing (males and females), contraceptive implants (females) and immunocontraception (where males and females are immunised against their own sperm or eggs). All three techniques currently require horses to be captured and handled so the method has practical and financial limitations. However, there continue to be advances in this field and future refinements may allow this approach to become a more practical option. For example, recent research in the USA is encouraging.

The Steering Committee concluded that fertility control is not a feasible option as there are currently no techniques for wide-scale, cost-effective administration of contraceptives.

5.2 Fencing

Fencing is not commonly used to control animals on National Park because it restricts public access and effects the movement of native species. Fencing is normally used to protect isolated areas of environmental sensitivity from impacts related to horses. In large areas, such as the Kedumba Valley, within the Warragamba Special Area, fencing would be prohibitively expensive to erect and maintain and would have significant visual impacts.

The Steering Committee concluded that fencing is not a feasible option as it is unsuitable for large management areas, such as the Kedumba Valley.

5.3 Shooting

5.3.1 Aerial Shooting

In 1991 the Senate Select Committee on Animal Welfare stated that shooting horses from helicopters is the only practical method for quick, large-scale and humane culling of large animals in inaccessible locations (Dobbie *et al*, 1993). The main advantage of aerial shooting is that shooters can locate and get close to the animal and any wounded animals can be followed up and destroyed.

However, there is national and international concern with the large-scale shooting of horses, particularly aerial shooting, especially from animal welfare groups. Following a cull of wild horses in Guy Fawkes River National Park, aerial shooting of wild horses in NSW National Parks was banned, due to animal welfare concerns raised by the broader community. In his *Report on the Cull of Feral Horses in Guy Fawkes River National Park* (2000), Dr Tony English concluded that the use of aerial shooting in Guy Fawkes River National Park was an appropriate technique under the circumstances and that it was carried out in a humane way, under approved protocols.

Aerial shooting was the highest scoring option against the agreed criteria, as the Steering Committee considered that this management method was humane, cost effective, efficient and was the most suitable method of control for meeting the management objective. The Steering Committee agreed that potential animal welfare issues would be addressed if staff conducting the program had the appropriate training, skills and equipment. However, the Steering Committee recognised that negative perceptions about the humaneness of this management method exist within the broader community. Alternatively, the committee also recognised that the opposed view exists within other sectors of the community such as bushwalkers and environmentalists, that it is the most efficient and effective control option.

The Steering Committee also noted that DEC (PWD) has a current ban on aerial shooting and that this method is not consistent with the RSPCA policy against shooting animals from a moving platform.

Therefore the steering committee did not recommend aerial shooting as a feasible control option, even though it was identified as the most suitable method. This was due primarily to the negative media representation of this issue and the negative public perception within the broader community. However, the steering committee was willing to investigate this option further, if after implementation and review of the preferred control methods, it was determined that they were not meeting the management objective.

5.3.2 Ground Shooting

Ground shooting can be quite effective, particularly in relatively flat, accessible country. A major problem with ground shooting compared to aerial shooting is that it's difficult to follow up and ensure mobile wounded animals are destroyed quickly.

Ground shooting can also be used to euthanase injured or very ill animals as recommended by veterinary advice or where a horse threatens the safety of people. Shooting also avoids any stress to the horse that may be associated with capture and transport, particularly if the horse would inevitably end up being destroyed or sent to an abattoir because of their age and 'wildness'.

Ground shooting scored second highest against the agreed criteria. Its score was lower than aerial shooting due to greater safety risks to staff implementing the control program and the increased cost and effort required to meet the management objective.

The Steering Committee concluded that ground shooting be implemented as a last resort, if it is determined that stage one (capture, removal and re-homing) was no longer successful after being

assessed against the agreed criteria. The success of capture and removal methods may be reduced if some animals are trap shy, located in very remote areas where trapping is not feasible, or lone animals such as older stallions being widely dispersed.

5.4 Capture and removal methods

There are a number of techniques which can be used to capture and remove horses. There are also a number of issues associated with each of the capture and removal techniques including:

- environmental impacts associated with horse riding, and vehicular access required with an extensive control program
- stress on horses as a result of the capture and then transportation from the park
- risk of injuries to riders and horses
- various degrees of efficiency among the different methods in capturing horses
- once removed from the park, the horses must be re-homed

5.4.1 Salting, trapping and removal of horses out of the park

This option involves attracting horses to an area using salt blocks, erecting portable trap yards and capturing the horses. Other attractants such as food sources, coacher horses or mares used to lure stallions could be used as an alternative to salt. Salt is only successful as an attractant in areas where horses are deficient in that mineral.

This management method is labour intensive, due to the site survey required, and monitoring of the trap yards once established. The yards will be located in relatively remote locations, so this process requires a large commitment of time and people.

The method of salting, feeding, trapping and removal scored the third highest against the agreed criteria. The Steering Committee recognised all methods that don't destroy the horse will have higher costs and labour requirements, related to capture, transport and care for the animal. There are potential safety risks to staff implementing the control program from aggressive or stressed animals. The environmental impacts associated with this method will be higher than the shooting control option, as there is repeated access required, trap yards need to be established, and the control program would be implemented over a longer timeframe. The Steering Committee also recognised that there is stress to the horse related to handling, particularly if the horse would inevitably end up being destroyed or sent to an abattoir because of their age and 'wildness'.

The Steering Committee recommended this management method be implemented as the first stage of an integrated pest strategy. This method was not identified as being the most suitable option for meeting the management objective, however, the majority of the Steering Committee concluded it would have wider acceptance than shooting control options within the wider community, and that this method supports current DEC and RSPCA policy. Even though this method is not considered to be as effective, or cost efficient as shooting control options, the Steering Committee recognised that it still has practical applications in controlling the horse population within the Warragamba Special Area.

5.4.2 Immobilisation using tranquillisers delivered by a dart rifle

The use of dart rifles to deliver tranquillisers to immobilise horses for transport was suggested as a control method. This method is both labour intensive, costly and requires veterinary supervision. Therefore it is not practical for large scale reduction of horse numbers, particularly in rugged terrain. Tranquillisers are difficult to administer to wild animals due to their mobility. In addition there are

potential risks to the animal, such as stress, falling, and broken limbs. However, in some cases this may be the only method to capture lone animals if the desired outcome is to re-home the animal.

Immobilisation using a tranquilliser delivered by dart rifle was the lowest scoring method against the agreed criteria. The Steering Committee concluded that immobilisation was not the preferred management method due to the high costs and effort associated with this technique, and the inefficiency of controlling a large number of horses. It was discussed that it has the potential to be used as a method in combination with another technique, however it was decided that it would not be applied in this situation.

5.4.3 Mustering using helicopters

This option involves mustering of horses by helicopter into trap yards with long fences, which direct the horses into the yards where they are held and then led by horse riders to trucks for removal out of the park.

Some of the issues identified with this method include:

- It is likely to be economic only when horse densities are relatively high.
- Negative public opinion regarding use of helicopters to muster horses.
- Horses that escape learn to avoid helicopters.
- It is much more efficient in open, relatively flat country. It is not likely to be very effective in rugged, timbered country.
- It is more stressful on horses than trapping.
- The cost of an experienced pilot and helicopter is significant.

Advantages of this method is that an attractant is not required, and there is potentially less environmental impact than mustering with vehicles and horses.

The Steering Committee concluded that mustering using helicopters is not a feasible option due to the landscape constraints of the Warragamba Special Area.

5.4.4 Mustering using horse riders

This option involves mustering horses into trap yards using horse riders and leading them out to be loaded onto transport for removal off-park.

Some of the issues associated with this method include:

- Horse riders can traverse rough and timbered country.
- There are environmental impacts associated with running horses, particularly in fragile environments.
- There are risks to riders in difficult terrain and climatic conditions.
- It can be stressful for horses and there is a risk of injury.

The Steering Committee concluded that mustering using horse riders is not a feasible option due to its disadvantages and the likelihood it would not be effective in removing all the horses.

5.4.5 Roping

Roping is a method of capturing horses from horseback. It involves the roping of horses, then leading the horses to where they can be loaded onto a truck and removed.

This method has been used in Victoria to reduce horse numbers in remote areas. Parks Victoria records show that during the past few years an average of 200 horses per year were removed by this method. Recent research also indicates that the average catch of wild horses using this method as reported by the Alpine Brumby Management Association (ABMA) of Victoria is one horse every one to two rider/days, depending on the skill of the rider.

Issues associated with this method include:

- The method results in a relatively low number of horses taken.
- It can target horses in more remote areas.
- It requires skilled riders and the number of riders with sufficient skills to capture horses is limited.
- There are environmental impacts associated with running horses, particularly in the fragile environments, however the environmental impacts are dispersed across a wide area.
- There is a risk to riders in remote and difficult terrain.
- It can be stressful for horses and there is a risk of injury.

The Steering Committee concluded that roping is not a feasible option due to its disadvantages and the likelihood it would not be effective in removing all the horses.

5.5 Preferred management strategy

The Steering Committee recognised that different techniques are best suited to particular situations depending on issues such as mob size and age structure, geography and season. A variety or combination of different techniques will give the most effective results.

The Steering Committee concluded that the control method to be implemented would be:

1. Salting, feeding, trapping, removal and re-homing.
2. Review of control program and determination whether program is meeting management objective and successful within agreed criteria categories.
3. Ground shooting, as a last resort, if review of stage one determines that supplementary control method is required.
4. Review

The Steering Committee was willing to investigate the option of aerial shooting further if, after implementation and review of the preferred management strategy, it was determined that they were not meeting the management objective.

The implementation of this strategy will be detailed in Section 6.

6. Control methods to be implemented

The Warragamba Wild Horse Management Steering Committee has had the benefit of being able to review the progress and outcomes of other horse management programs in NSW. Guy Fawkes River National Park and Kosciusko National Park both have active horse management programs in place. Both areas have a horse management committee and an approved horse management plan. Removal of horses for both areas commenced in 2003. These programs have provided valuable information and experience for the decision making of the Steering Committee.

As with the management of any vertebrate pest, no single method is likely to offer effective control. Given that the objective is to remove all of the wild horse population from Schedule 1 and Schedule 2 lands of the Warragamba Special Area a staged management strategy is required.

The Steering Committee considers that the following capture, removal and control methods should be further investigated, monitored and evaluated in the Warragamba Special Area to determine their effectiveness in humanely removing horses. These methods were chosen over others for their practicality, humane treatment of horses, cost effectiveness and their acceptance by the wider community. As mentioned earlier in this document, there are a number of issues associated with these methods and the monitoring program, as outlined in Section 8, will allow for these issues to be fully explored.

6.1 Trapping horses in yards using lures

DEC (PWD) will trial the technique to trap and remove horses from appropriate areas of Warragamba Special Area. Initial focus for trapping will be in the Kedumba Valley area. Trapping horses in yards will be stage 1 of the management strategy for removal of horses from the Warragamba Special Area. It is anticipated that a large proportion of the horse population will be readily captured.

Trapping horses in yards using lures involves attracting horses to a trap yard using either salt or feed. The trap is activated once the horses start using the yard. Automatically closing mechanical gates can be used, such as a wide turnstile gate that is automatically triggered to revolve. A less elaborate system is a one way bayonet (or spear) gate. This approach allows horses time to get accustomed to going into the yards before the gate is set to operate. The yard would need to be erected for some time to “train” horses to go in for the salt or feed provided.

Salt lures have proven to be far more effective than feed sources such as lucerne and grain. The salt block is suspended from a tree to minimise leaching of salt into the soil. The site must be monitored regularly to assess whether horses are using the salt. Once it is established that they are using the salt, a set of temporary trap yards can be erected at the site, which allows the horses to continue to access the salt. The trap should be activated once the horses start using the yard. Once yards are erected they need to be checked regularly. This becomes more critical when the trap is set.

Yards may not be able to be erected in areas of thick forest, nor in sensitive habitats such as wetlands. There will be areas like this where it will be impossible to trap horses in this way. It may take a long time for horses to start coming to the trap for the salt or feed, depending on seasonal and weather conditions.

After trapping, horses are then led by mounted riders and loaded onto a truck and removed from the park. The distance between the trap yards and the vehicles is dependent on the terrain. The number of horses in the trap determines the number of riders required to lead horses out. Generally two riders are required to lead each horse, depending on the terrain. A code of practice for the capture and transport feral horses is included as Appendix 2.

Paddock trapping may be implemented if trapping of horses in yards using lures proves to be ineffective. This method is similar to yard trapping except the perimeter of the trap is much larger. Trap paddocks generally encompass an area of 10,000m². The type of perimeter fencing can vary. Cable fencing with netting and wire mesh, metal pickets with hessian have been used with success in other areas. Trap paddocks due to their size can only be constructed where suitable flat terrain exists.

Access required for implementation of this strategy, will be subject to appropriate environmental assessment and conditions to minimise environmental impacts.

6.2 Ground Shooting

The Steering Committee has recommended the use of on ground culling using firearms as stage two of the management strategy. The Committee concluded that if trapping is unsuccessful in removing all of the horse population from the Warragamba Special Area, ground shooting should be implemented as a supplementary technique. Stage two of the strategy will only commence as a last resort, and only if the Steering Committee has concluded that lure trapping is unsuccessful when assessed against the agreed criteria.

This stage of the integrated management strategy will be implemented using suitably qualified staff. Both the DEC and the Rural Lands Protection Board system have suitably qualified staff to undertake the program. A Ground Shooting operational plan will be developed in consultation with the Steering Committee and endorsed by DEC prior to the commencement of Ground Shooting. A code of practice for carcase management and disposal will be incorporated into the operational plan.

The steering committee has suggested that the option of aerial shooting of horses may be revisited and further investigated if the recommended strategy of trapping and removal, and onground culling fails to achieve the management objective of eradicating the wild horse population from the Warragamba Special Area.

7. Horses captured and removed from the park

A Code of Practice for the Capture and Transport of Feral Horses was developed by Dr Tony English as part of the Terms of Reference for a review of management of wild horses in NSW national parks. The NSW Government is currently considering how this code should be given legal status. This code of practice will be adhered to in relation to all horse management activities conducted within the Warragamba Special Area. RSPCA inspectors have committed to conducting an independent audit of the capture, handling, transport, or shooting of the horses implemented in accordance with the management strategy. If the horses are removed under a contract arrangement, the duty of care and legislative responsibility for the humane treatment of the horses will be the responsibility of the contractors.

An assessment of condition for all horses trapped would be conducted prior to handling the horse and preparing it for transport from the national park. If the ultimate end point for the horse is likely to be the abattoir, due to its age or condition, the appropriate humane treatment would be to dispose of the animal on site, according to euthanasia protocols.

The availability of suitable homes for the horses captured and removed from the Warragamba Special Area is critical to the success of Stage 1 of the management strategy. If the horses are removed under a contract arrangement DEC will encourage the use of criteria to assess the suitability of the potential owner, prior to releasing the animal into their care, to better ensure ongoing welfare needs are met.

There are examples of programs previously incorporating training wild horses into rehabilitation programs. DEC would also encourage a central register or web site to be established to register interest from people wanting to obtain a horse removed from the park. Programs such as these could provide a further use for the wild horses once they have been removed from the national park.

8. Monitoring and evaluation

This Plan will operate as a flexible document with the potential to develop, as various control methods are evaluated and modified. The WWHMSC will monitor and evaluate the implementation of the Plan.

Monitoring and evaluation procedures need to enable an assessment of the success and failure of this Plan in achieving its stated objective. The objectives of the monitoring program are to:

- evaluate how the management strategy meets the objectives of the Plan.
- collect information to enable the DEC to modify and improve management techniques as appropriate.

8.1 Monitoring the humaneness of the removal program

An important purpose of monitoring capture and removal techniques is to ensure that animal welfare is not compromised. A trial approach also allows for modifications to the technique to be introduced at an appropriate time. RSPCA inspectors will be involved at appropriate stages in the development and implementation of the program, to provide advice and conduct an independent audit of animal welfare.

8.2 Evaluating the effectiveness of the removal program

The effectiveness of the horse removal program will be assessed by the reduction over time of the horse population in the Warragamba Special Area. While the exact current horse population size is not known, an estimate based on aerial and ground surveys indicates the population range to be between 30 to 50 animals. The horse population will increase if the control program removes fewer horses than the annual horse population growth. Projections for horse population growth, based on a stable environment, can be calculated if assumptions on total horse population and growth rate are made. The limited data available suggests the growth rate per year to be between 12 and 20%.

Horse population projections based on an estimated population of 50 horses, with an annual growth rate of 15% indicate that a minimum of 13 horses must be removed every year, to theoretically reduce the population to zero in 5 years. If no horses are removed, the population will continue to increase and in 5 years the population will have doubled. Unchecked, the horse population will increase by an average of:

- 8 animals in the first year
- 9 animals in the second year
- 10 animals in the third year
- 11 animals in the fourth year
- 13 animals in the fifth year

Horses will be more difficult to locate and capture as the population is reduced and gets closer to zero. This means that as the population reduces greater effort and resourcing is required.

This Plan proposes the removal of all horses from Warragamba Special Area over a five-year period. As the exact horse population is not known it is advisable to focus on a high population estimate to ensure catch effort is aimed at removing a significant proportion of the horse population. It is recommended to reduce the horse population by 50% each year until the population is small enough that only a few horses remain to be removed in the final year of the program. Assuming the population may be as high as 50 horses, then the capture program should aim to remove a minimum of 25 horses in the first year. For this to be achieved appropriate resourcing and well-developed

capture techniques will be required. An assessment of the horse population will be required each year to identify the number of horses which should be targeted for removal in the following year.

The presence of horses in the park will continue to be monitored using the following methods:

- Aerial surveys of horses in the Special Area by DEC (PWD) and SCA staff.
- Reports of horses from DEC (PWD) and SCA staff working in the Special Area
- Reports received from the public about the presence of horses in the catchment.

The results of the control operations will be recorded. This information required will include:

- A record of all horses removed or destroyed, including sex, colour and approximate age
- Numbers/locations of horses sighted
- Advice on any accidents or injuries to any horse, rider or staff member
- The number of days used to capture the horses
- Number of horses used in capture/removal of horses
- The number of days used in ground shooting program

The Steering Committee will be required to assess the success of the control program against the agreed criteria. If it is determined that stage one of the integrated strategy is no longer meeting the management objective, stage two of the strategy will be implemented.

8.3 Monitoring the environmental impact of the removal program

The DEC will undertake environmental assessment of activities related to the control techniques used in the catchment area. It is important the removal techniques do not cause greater environmental damage than the existing presence of wild horses in the catchment.

The establishment and use of trap yards, will impact on the local environment, which will vary according to the nature of the environment and type of yard construction. Salt lures placed on the ground can kill vegetation and soil fauna. When using traps there is a concentration of horse related impacts within the trap and associated yard or paddock. The erection of trap yards may impact on native fauna movement and causes injuries or death from entanglement.

Impacts at trap sites and associated roads and tracks, will be monitored using fixed photo points at each site. Photo will include the trap site, yards and surrounding area. At the completion of the program all fencing and trap material will be removed from the Warragamba Special Area. Where required, trap sites will be restored to a natural condition using standard site rehabilitation techniques such as bush regeneration and brush matting. At all time times the environmental impact at these sites will be kept to a minimum.

A code of practice for carcase management and disposal will be incorporated into the Ground Shooting operational plan, to minimise impacts on water quality.

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Appendix 1

Criteria for determining preferred management techniques for removal of horses from Warragamba Special Area

Method	Animal welfare/ humaneness	Cost/effort	Effectiveness/ timeframes	Environmental impact	Occupational safety	Public perception	Score
	P =3, M =2, N =1	P =3, M =2, N =1	P =3, M =2, N =1	P =3, M =2, N =1	P =3, M =2, N =1	P =3, M =2, N =1	
1) Immobilisation using tranquillisers delivered by a dart rifle	2	1	1	3	1	2	10
2a) Fertility control							0 (Not an option)
2b) Surgical desexing							0 (Not an option)
3) Fencing							0 (Not an option)
4a) Ground shooting	1-3	2	3	3	1	1-3	11-15
4b) Aerial shooting	2-3	3	3	3	3	1-3	15-18
5a) Salting, feeding, trapping and removal	2-3	1	1	2	1	2-3	9-11
5b) Mustering using helicopters							0 (Not an option)
5c) Mustering using riders							0 (Not an option)
5d) Roping							0 (Not an option)
5e) Lure mares							0 (Not an option)

Code of Practice for the Capture and Transport of Feral Horses

Contents:

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- 1. Introduction
- 2. Responsibilities
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- 4. Capture
- 5. Pre-transport preparation of horses
- 6. Loading
- 7. Transport design
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- 9. Travel
- 10. Unloading
- 11. Emergency euthanasia of horses

Preface

In some national parks in NSW there are feral horse populations that are increasing to levels where the extent of damage they are causing to the ecosystem is unacceptable. These horse populations must be managed to ensure that their adverse impacts are minimised, which generally will mean that the animals will need to be relocated. This Code of Practice has been developed with this particular purpose in mind, that is, removal of feral horses from often remote and difficult terrain such as occurs in some national parks. It emphasises the need for well-planned operations with minimal stress and suffering inflicted on the horses. The Code has been developed by the Faculty of Veterinary Science, University of Sydney, as part of the Terms of Reference for a review of management of feral horses in national parks in NSW.

It is strongly recommended that this Code be widely distributed among those involved in capture and transport of feral horses, so that its distribution is much wider than the National Parks and Wildlife Service of NSW.

Legal status of Codes of Practice

Codes of practice are recommendations only and have no statutory power unless they are incorporated into legislation. To ensure that this Code of Practice is successfully implemented, it is proposed that the code be given legal force through regulation under relevant legislation relating to the prevention of cruelty to animals. It is also recommended that the code be a disallowable instrument and that breaches of the code, although not actionable as such, may be used as evidence in support of prosecutions under provision of the principal legislation.

Only registered and accredited musterers and transporters that abide by this Code of Practice should be permitted to muster and transport feral horses from national parks in NSW.

1. Introduction

This Code has been prepared to provide guidance to persons involved in the capture and transport of feral horses, including from rough and difficult terrain. In particular, this Code has been prepared with the aim of improving the humaneness of feral horse mustering and transport, since this has been a major animal welfare concern in the past. Procedures must be used that are designed to ensure that the chance of undue stress or injury occurring to horses are minimised at all stages of the operation.

This Code covers the entire period from the commencement of capture operations, to holding in an enclosure, loading, transit, rest periods and unloading at the point of destination. It focuses on road transport, but the same principles apply to rail and sea transport. It emphasises the responsibilities of those planning and conducting the capture operation, as well as the drivers, and other personnel involved at any stage.

This Code emphasises the need for thorough planning prior to the capture operation. Lack of adequate planning greatly increases the risk of unnecessary stress, injury or even death of horses, and also the risk to the people involved. It must be recognised that even the best planning cannot ensure that the capture operation will go exactly to plan, and the plan needs to be flexible enough to ensure that unexpected contingencies can be dealt with.

Horses can be efficiently and humanely transported by road if:

- care is given to the selection and preparation of horses prior to transportation;
- care is taken in the loading of horses using facilities well designed for horses;
- the trip is scheduled to minimise delays in travel or at the point of disembarkation of the horses.

Feral horses are not accustomed to being handled by humans or to being confined within an enclosure or transport vehicle. It is essential that operators provide the highest standards of care to minimise the adverse effects of capture and handling. The capture of feral horses should only be conducted by trained and competent operators experienced in managing wild animals, with due consideration for the welfare of the horses at every stage. If horses are badly handled there is a significant potential for horses to suffer considerably during and after capture. They can be driven to exhaustion, injured in the yard or on the truck, and may become dehydrated if not provided sufficient opportunity to drink. This suffering can be minimised at little extra cost to operators by following correct procedures.

2. RESPONSIBILITIES

2.1 NSW National Parks & Wildlife Service (NPWS) or Agent

- 2.1.1 A briefing of all staff, contractors and volunteers involved must be held prior to commencement of capture operation. All people involved must be adequately trained or experienced in the capture of feral horses.
- 2.1.2 The mustering, trapping and handling of feral horses is not without risks to the people involved, even if they are very experienced. A first aid kit must be carried at all times during muster and loading.
- 2.1.3 There must be contingency plans in case of a human emergency, and adequate communication (mobile phones/radios) available. A means of casualty evacuation must be in place for the duration of the operation.
- 2.1.4 Where there are tourists present in national parks, NPWS staff trained in traffic management must be used to ensure the safety of motorists and horse riders while the horse loading operation occurs.
- 2.1.5 All people involved must be covered by insurance – volunteers will be covered by NPWS volunteer policy; contractors will need to show evidence of insurance coverage.

2.2 Capture

- 2.2.1 Helicopter pilots, horse and motor cycle riders
Helicopters used for mustering horses in rough or inaccessible terrain must only be flown by pilots trained or experienced in feral horse mustering. Horses must not be pushed too fast or too far causing exhaustion, injury or separation of foals from mares. Operators on horseback or on motor cycles must be skilled, used to working with stock, and sensitive to the nervous nature of feral horses.

2.3 Transport

- 2.3.1 The possibility of animals being injured or becoming ill must be minimised by transporting them to their destination as speedily as possible, within the confines of any legal requirements.
- 2.3.2 Plans should be made to minimise any delay that could be stressful to horses. The driver must carry any phone numbers (plus mobile phone) that may be needed should any emergency arise, plus contact details for whoever is receiving the horses.
- 2.3.3 If the horses are being transported interstate or are being exported, persons organising the transport must be aware of any requirements for health certification and welfare of the

animals and ensure that approvals and documentation are completed before the planned journey.

- 2.3.4 Only fit and healthy animals should be selected for transport. Those most susceptible to disease, stress or injury during transport (sick, lame, weak or young horses) should be loaded last and unloaded first. Separate accommodation for such animals is preferred.

2.3.5 Agent's responsibilities (National Parks Service or other person, such as private landowner, deemed as manager or owner)

- 2.3.5.1 The agent has a responsibility to select only fit and healthy horses for travel. Lame or sick horses should not be transported except for veterinary treatment.
- 2.3.5.2 The nature and duration of the proposed journey should be considered when determining the degree of fitness required.
- 2.3.5.3 The agent is responsible for the provision of well maintained loading facilities.
- 2.3.5.4 Proper pre-conditioning of horses, including feeding and watering should be performed by the agent.

2.3.6 Driver's responsibilities

- 2.3.6.1 A driver should refuse to load any horse that is not fit and healthy to travel. The driver of a road vehicle is responsible for the care and welfare of animals during transport, unless an attendant appointed by the agent travels with the vehicle. Drivers must stop and assist a distressed or injured animal immediately they become aware of a problem.
- 2.3.6.2 Drivers should be trained to ensure the welfare of horses in their charge and must follow the provisions of this Code of Practice.
- 2.3.6.3 Good driving technique is an important factor in ensuring that the welfare of transported horses is protected. A minimum level of driver's skill, with a concentration on adequate appreciation of the care and responsibilities for the horse, should be recognised by license endorsement.
- 2.3.6.4 The owner of loading facilities including ramps is responsible for their maintenance.

3. MINIMISING STRESS

- 3.1 Stress is a cumulative response of an animal to its surroundings and may result in severe physiological effects. Horses may be susceptible to the following conditions resulting from prolonged or excessive stress during capture:

- *Capture myopathy* – excessive or prolonged exertion produces high levels of lactic acid in muscle resulting in muscle necrosis. This condition is associated with severe pain. It can result in collapse and sudden death during or following pursuit of animals for long distances during capture.
- acute lameness due to foot injury or damage to tendons or ligaments
- fight injuries due to mixing unfamiliar groups or individuals
- chronic ill-thrift associated with stress-induced ulcers, kidney and liver damage
- bruising and injury caused by rough capture techniques and poorly designed handling facilities
- stress-induced infections, such as salmonellosis.

The incidence of these conditions will be minimised by using the capture and handling techniques set out in this Code.

- 3.2 Long-acting tranquilisers have been developed for use in wild animals, and can greatly reduce mortalities resulting from the stress of capture and transport, and may have significant animal welfare benefits in feral horses. They should only be administered by a veterinarian. However, the use of such drugs will not replace the need for effective and humane handling of the animals.

- 3.3 The smaller the number of horses included in any one operation, and the shorter the distance travelled, the less stress is likely for the animals. It is desirable that these be kept to the minimum practicable.

3.4 Capture

- 3.4.1 Suffering of the horses must be minimised during capture by pushing the horses no faster than is necessary during muster, using quiet and patient handling in the yard, providing food and water, and by separating age and size classes. The whole process must be designed to ensure that there is minimal excitement or panic among the horses, and that they are not chased to exhaustion. They should not be pressured or forced into corners where they panic or

try to escape. The intention must be to keep the horses as calm as possible throughout the operation. Horses may be injured by fighting or by running into fences or other fixed objects if they are impatiently handled. If things are not going well and there is a strong likelihood of horses being injured then the operation should be abandoned for that day.

- 3.4.2 Enforcing a new social structure on horses and confining them in yards and transport vehicles with strange horses greatly increases their stress levels and can result in a higher incidence of injuries. Normal social groups should be maintained whenever possible. Injuries can be dependent on social behaviour and the degree of aggressive interaction between horses.
- 3.4.3 Trapping with salt or other lures causes far less stress to animals compared with mustering, and where this is possible it is the preferred method.

3.5 Transport

- 3.5.1 Feral horses will always be stressed during transport by the handling involved in assembling them. They should be coerced gently, without pressure, to move onto the loading ramp.
- 3.5.2 Pregnant mares should not be transported if visibly heavily pregnant.
- 3.5.3 Horses that are visibly distressed and excitable, making them intractable or unmanageable, should not be transported. There may be a case for the use of tranquillisers in such animals, but these must only be administered by a veterinarian. This may involve the use of projectile syringes in yarded horses.
- 3.5.4 It is important that transporters realise that animals constrained by transport cannot seek shade, shelter or move away from cold draughts, and that the stress of transport will be increased by inclement weather.
- 3.5.5 Good ventilation in the transport is absolutely essential, as is the avoidance of overcrowding.

4. CAPTURE

4.1 Acceptable methods of capture:

- 4.1.1 Mustering on horseback, by vehicle or by helicopter. The mob is moved steadily towards a set of stockyards or a holding paddock;
- 4.1.2 Yard trapping using feed, salt licks and/or water. May use funnelling wings. Traps with self-closing gates should be checked at least once every 12 hours.
- 4.1.3 The success of mustering or trapping will depend very much on the skill and experience of the personnel involved.
- 4.1.4 Critical elements in any mustering and trapping program will be the location, layout and materials used to construct enclosures and wings. The siting and construction of any temporary yard system will vary from place to place, but there must be a good knowledge of the movement patterns of the horses to be trapped, and of their likely reactions when first approached. The materials used must minimise the risks of injury or escape of horses once in the enclosure.

4.2 Chemical immobilisation

- 4.2.1 Feral horses can be captured by the use of immobilising drugs delivered by projectile syringes. In considering this option, the following points need to be taken into account:
 - 4.2.1.1 Dart rifles have limited range (40-60 metres) and this restricts the ability of even experienced users to dart significant numbers of horses in rough or inaccessible terrain.
 - 4.2.1.2 Even from helicopters, it would be difficult to dart horses without many hours in the air, which would be very expensive and probably not cost-effective.
 - 4.2.1.3 There can be a significant risk of injury to darted horses as the drugs are taking effect, especially in rough terrain.
 - 4.2.1.4 These powerful drugs are restricted to use by veterinarians, who should preferably have experience in wild animal capture and transport.
 - 4.2.1.5 This method may be applicable if a need arose to capture a specific horse for any reason, with expense not being a major consideration. It is unlikely to be used as a primary means of capturing large numbers of horses. Once horses are captured in enclosures, it may well be appropriate to use projectile syringes to administer long-acting tranquillisers before the horses are roped and handled.

4.3 Mustering

- 4.3.1 It is preferable that mustering be carried out when conditions are cool or mild. The tail end of the mob should set the pace rather than being forced to keep up with the leaders.
- 4.3.2 Horseback mustering
- Skilled horse riders pursue and direct feral horses into winged yards.
 - “Brumby running” may be approved under some circumstances, whereby feral horses are roped from horseback, providing that environmental and welfare aspects are taken into account.
 - Horses should not be pursued for roping in particularly environmentally sensitive areas.
 - Due consideration must be given to the roped horse, that it is not stressed or pressured unnecessarily.
 - Tame lure mares can be used to lure feral stallions into yards.
- 4.3.3 Helicopter mustering
- Mustering by helicopter enables mustering of horses in more remote and inaccessible areas. Mustering by helicopter has less impact on the environment than by vehicles or horse riders, but may need back-up from horse riders.
 - Helicopters are unnecessary where the terrain can be covered adequately on motor cycle or horseback. A helicopter can be used to bring horses out of rough terrain onto flatter, more open country where riders wait on horses or motor cycles.
- 4.3.4 Horses captured by muster or chase should be allowed a minimum of 24 hours rest, with food and water, before they are transported on journeys longer than 8 hours. A good system allows horses to be led out to the loading ramp by horse riders, but in smaller temporary yards the layout should allow horses to be handled and taken out with minimal stress. The location of the enclosure should allow the vehicles to be taken right to the site if at all possible.
- 4.3.5 A group of stock horses, referred to as coacher horses or trainers, can be walked out to a suitable flat area. Motor cycle or horseback riders can then run the feral horses towards the coacher mob until the feral and coacher horses are ‘boxed’ together. The coacher horses have a calming influence on the feral horses, which become easier to control. The whole mob is then walked to yards where the coachers are drafted off.

4.4 Trapping

- 4.4.1 This involves attracting horses to a trap yard using salt, feed or water. The trap is activated once horses start using the yard. Automatically closing mechanical gates can be used, such as a wide turnstile gate that is automatically triggered to revolve, but a less elaborate system is a one way bayonet (or spear) gate. This approach allows horses time to get used to going into the yards before the gate is set to operate. The yard would need to be erected for some time to “train” horses to go in after the salt or feed provided.
- 4.4.2 Yards may not be able to be erected in areas of thick forest, nor in sensitive habitats above the tree line in alpine areas. There will be areas like this where it will be impossible to trap horses in this way.
- 4.4.3 It may take quite a long time for horses to start coming in for the salt/feed/water, depending on seasonal and weather conditions.
- 4.4.4 After trapping, horses may be led out by horse riders to the loading ramp, which depending upon the terrain, may be a short distance away. In the case of rugged and remote areas, horses once captured may need to be moved either long distances or up steep fire trails to a waiting vehicle, and this process can be very stressful for the horses and potentially dangerous for the operators.
- 4.4.5 Trapping at water points
- Feral horses can be trapped as they come to drink by permanent or portable yards erected around a watering point. This method is restricted to dry times when there are few places for horses to drink. It is also disrupted by untimely rainfall.
- 4.4.6 Trapping using feed attractant
- This has not been found to be particularly successful in luring feral horses; they may not recognise hay or other baits as feed.
- 4.4.7 Trapping using salt licks
- Salt blocks should be hung from a tree, or placed to reduce environmental impact. The site must be monitored regularly to assess whether horses are using the salt. Once it is established that they are using the salt, a set of temporary trap yards can be erected at the site. The trap should be activated once the horses start using the yard.

5. PRE-TRANSPORT PREPARATION OF HORSES

5.1 Pre-travel rest period

- 5.1.1 Frightened horses are difficult to load or transport and they should therefore be given an opportunity to become acclimatised to new surroundings and accustomed to each other before transport.
- 5.1.2 A rest period of at least 12 hours is essential, but at least 24 hours is preferred where horses have been mustered over long distances by helicopter or light plane.
- 5.1.3 Groups of horses unfamiliar to each other should be segregated during the pre-transport period to avoid stress. Ideally, horses should be divided into the following groups: males; pregnant females; females with suckling foals; and other females and juveniles.
- 5.1.4 Groups will require sufficient space to rest, feed and exercise.
- 5.1.5 Unweaned foals under 6 months of age should not be separated from their mothers for transport.
- 5.1.6 There should be provisions made to segregate fractious and dominant animals from the mob as soon as possible after yarding.

5.2 Accommodation & Handling Facilities

- 5.2.1 The accommodation provided for captured feral horses should not cause distress or injury, and should not predispose them to disease. Captured horses must not be held in small yards or under crowded conditions for extended periods, especially where yards are on hard, stony ground. Whenever possible, holding paddocks should contain some dense cover, such as closely planted trees and shrubs, to provide shade and to give animals a sense of security. Yards should have adequate natural shade or have shade cloth covers provided.
- 5.2.2 Fence lines should be constructed of strong and easily visible materials that will discourage attempts to escape. Barbed wire and high tensile wire can cause severe injury and should never be used to fence areas intended for holding or drafting feral horses.

5.3 Water and feed requirements

- 5.3.1 Following capture, palatable hay or alternate feed must be provided if horses are confined to areas with insufficient or unsuitable feed for more than 12 hours, or if about to travel for more than 12 hours. A 'rule of thumb' rate for feeding hay is 8 kg per adult per day. Horses unfamiliar with such feeds may refuse to eat however, at least initially.
- 5.3.2 Feed and water supply systems should ensure that all horses have access to feed and water and that wastage is minimised.
- 5.3.3 Captured horses should be checked each day to see that they are eating. Horses that refuse to eat or are less thrifty should receive special attention. Those which do not respond should not be permitted to weaken or starve, but should be humanely destroyed.
- 5.3.4 If nutritional supplements are included in the diet, they should be introduced gradually to avoid serious metabolic disturbances.
- 5.3.5 Water must be freely available to horses following capture. When water troughs are the only source, the supply of water should be checked daily. Adult horses require 25 litres/horse/day. Double this amount is required in hot weather.
- 5.3.6 Horses which have been captured from areas with brackish water should only be introduced to alternative water supplies very gradually.

5.4 Health and routine inspections

- 5.4.1 All captured horses should be checked by an experienced person at least once a day for signs of injury, inappetance, illness or distress. If a problem is apparent, action should be taken to establish the cause and where possible correct it. If the cause cannot be identified or where remedial action is unsuccessful, veterinary advice should be obtained as soon as possible.
- 5.4.2 Appropriate preventative measures, such as vaccinations, should be taken against diseases that are endemic in areas to which the animals will be taken.
- 5.4.3 Lame animals should be handled and transported as little as possible. Failure to allow injuries to heal may result in chronic lameness.
- 5.4.4 Animals with broken limbs, painful deformities, debilitating illnesses or injuries that do not respond to treatment should be humanely destroyed in accordance with the guidelines given in section 11.

5.5 General exemptions

- 5.5.1 Providing humane slaughter is not possible without transport, they are fit to travel, and with veterinary advice:
- weak animals may be transported as a salvage operation, e.g. from a drought area;
 - horses that are either ill or injured may be transported for veterinary treatment.

5.6 Horses injured by bushfire

- 5.6.1 After bushfires, horses assessed by a veterinary surgeon as capable of travelling without due pain or stress resulting from burns, may be transported elsewhere.
- 5.6.2 In the absence of a veterinary surgeon, bushfire affected horses may only be transported for agistment if they meet the following criteria:
- they do not show severe respiratory distress;
 - they are not reluctant to walk and do not exhibit undue pain or stress when encouraged to walk;
 - distressed horses should be humanely destroyed or treated by a veterinarian without delay.

5.7 Drought affected horses

- if still able to walk, they should be agisted or sent directly to the nearest slaughtering plant. They should not be consigned through saleyards.
 - only animals judged to be capable of surviving the journey should be transported.
- 5.7.1 Under no circumstances should horses be allowed to become so weak that they are not fit to travel. Animals which go down after limited exercise are not fit to travel and should be fed until strong, or promptly and humanely destroyed.
- 5.7.2 Weakened horses should be transported to their destination by the shortest practicable route. They should be given special protection against exposure to extremes of weather. They should not be mixed with strong animals.

5.8 Handling horses rejected from transport

- 5.8.1 Animals that are clearly suffering should be promptly and humanely destroyed. Methods for humanely destroying horses are provided later in this Code.
- 5.8.2 Humane and effective arrangements should be made by the agent for the handling and care of any animal rejected as unsuitable for loading.

6. LOADING

- 6.1 The time from loading, to unloading at destination, should be kept to a minimum. Plans should be made to minimise any delay that could be stressful to horses.

6.2 Supervision

- 6.2.1 Injuries and stress are most likely to occur during loading and unloading.
- 6.2.2 The loading procedure should be planned to allow adequate time for stock to be loaded quietly and without causing them injury.
- 6.2.3 Loading should be supervised by persons experienced in handling wild animals.
- 6.2.4 Supervisors should ensure that spectators do not impede the smooth loading of animals. Noise, harassment and excessive force should be avoided.

6.3 Sedation

- 6.3.1 Horses should not be routinely sedated for travel and sedation should only be used on horses which are particularly intractable. Horses should be sedated by a veterinarian or under veterinary instruction and only when this is best for the animal's welfare.
- 6.3.2 Sedated horses require special care to ensure they are not unduly affected by the motion of the transport vehicle or are not trampled on if they become recumbent. Sedated horses should be penned separately in horse floats and not transported on cattle trucks.

6.4 Cleanliness

Horses must only be loaded onto vehicles that have been thoroughly cleaned. Vehicles must be disinfected with approved disinfectants after cleaning if previous occupants have shown signs of contagious disease eg. nasal discharges, coughs, severe diarrhoea or draining abscesses.

6.5 Facilities

- 6.5.1 Loading should normally take place from a properly constructed ramp or loading bay.
- 6.5.2 There should be no protrusions or sharp edges on the framework, doorways, floors or partitions capable of injuring animals. Hinges and latches must not project into the pathway of animals.
- 6.5.3 Gates should operate smoothly, retract fully from the pathway of animals and not be susceptible to jamming. Gates should also be clearly visible to animals when shut by providing where necessary a “sight board” to improve visibility.
- 6.5.4 A flat area at the top of the ramp, not less than 1.5 metres in length, will assist in the loading and unloading of animals. This platform should be approximately at the same level as the stock crate floor. Ramps should have a slope of 1 in 3 (about 20 degrees) for permanent ramps, or no more than 1 in 2 (about 27 degrees) for portable or adjustable ramps (equipped with anchoring devices to ensure stability).
- 6.5.5 Ramps should have a surface of non-slip material with cross-cleats or, if concrete, with suitable cross-grooving to provide a good grip when the ramp is wet.
- 6.5.6 Overhead bars on ramps used for horses are undesirable. When they are used they should be at least 2.1 m high to prevent injuries to rearing horses.
- 6.5.7 Side protection should be of sufficient height and covered in at the bottom to prevent injuries. Inner rails should be smooth with no sharp projections. Provision of a removable bottom rail helps in raising fallen horses. Railings should be at least 1.5 m high where the difference in height the animals have to negotiate is more than 70 cm, or the length of the ramp is more than 1.50 m.
- 6.5.8 Filler boards or flaps should be used to cover any gap between the loading ramp and the floor of the stock crate. Young or weak animals should be drafted out to prevent them being trampled or crushed.
- 6.5.9 Horses may object to the hollow sounds resulting from walking on ramps. This can be reduced by using matting or putting earth or sand on the ramp floor.
- 6.5.10 Manual lifting is permissible where young foals may have difficulty negotiating a ramp.

6.6 Segregation during transport

- 6.6.1 Available evidence suggests that family groups travel well together, however it is advised that the following classes of horse should be separately stalled:
 - stallions older than one year;
 - heavily pregnant mares
 - mares with a foal at foot;
 - horses greatly different in size;
 - unfit animals travelling under veterinary supervision;
 - vicious horses;
 - sedated horses.

6.7 Assisting the loading of horses

- 6.7.1 Sticks, lengths of heavy plastic, metal piping or heavy leather belts must never be used to beat horses but may be used sensibly to encourage horses to move. “Flappers” (a length of cane with a short strap of leather or canvas attached) or “metallic rattles” may be used to encourage movement in response to sound.
- 6.7.2 Electric prods and dogs should not be used in handling feral horses, including loading or unloading of transport vehicles.
- 6.7.3 Facing away from the direction of travel may be less stressful for feral horses.
- 6.7.4 Feral horses should not be tethered in the transport vehicle, and head stalls should not be used.

7. TRANSPORT DESIGN

7.1 Construction and design

- 7.1.1 Vehicles and their fittings must be strong enough to contain the animals and prevent their escape.
- 7.1.2 Internal sheeting of the sides of stock crates and of internal ramps should be smooth to eliminate pressure points and reduce bruising.
- 7.1.3 For trailers with open sides, hessian should be fixed to the railings to provide an opaque barrier for feral horses.
- 7.1.4 Head injuries (bruising and lacerations) may be reduced by either removing or padding overhead structures above the horses. A false ceiling (e.g. of shade cloth to facilitate ventilation) may reduce the amount of head throwing and biting.
- 7.1.5 The parts of the vehicle or wagon through which horses move or are held should be free from obstructions and hazards that could cause injury. Doors should be wide enough to allow easy exit and entry (no less than 900 mm).
- 7.1.6 If necessary, the walls should be padded from a level of about 75 cm above the floor to a height level with the animal's back.
- 7.1.7 Vehicles must be kept in safe and roadworthy condition and receive regular maintenance inspections.

7.2 Use of partitions

- 7.2.1 Adjustable partition boards should always be used to help prevent animals maintain their balance where the animals are placed at right angles to the direction of travel. These will help to prevent injuries resulting from surging due to traffic or road conditions. The density of stock must be assessed for each division in a stock crate.
- 7.2.2 Partitions should be at least 60 mm high and placement at a height of about 600 mm from the floor may reduce scrambling. They should be removable in case an animal collapses.
- 7.2.3 In a two horse trailer, head height partitions should be used at the head of each animal to prevent them from biting adjacent animals.

7.3 Ventilation

- 7.3.1 The air circulation in enclosed vehicles should be sufficient to provide oxygen to prevent bacterial build-up, remove smells and gases and ensure a comfortable temperature and humidity.
- 7.3.2 The exhaust system of a vehicle must not pollute the air inside the transport.

7.4 Two-horse trailers

It is usual to pen a single horse on the driver's side of the trailer or place the heavier horse on the driver's side.

7.5 Double-deck transport

Feral horses should not be transported in double-decked vehicles.

8. LOADING DENSITY DURING TRANSPORT

- 8.1 The driver is responsible for ensuring the loading density and penning arrangements are compatible with the welfare of the horses and the capacity of the transport vehicle.
- 8.2 Loading horses either too loosely or too tightly predisposes them to injury. Partitions should be used to reduce the likelihood of injury. Too close packing may result in horses having permanent body contact leading to panic reactions when the vehicle sways.
- 8.3 When calculating space requirements, the size and condition of the animals, the weather and the nature and duration of the journey should be considered. The objective should be to minimise injury and allow cast horses to rise without assistance.
- 8.4 Foals and young horses involved in long journeys must have sufficient space in which to lie down.

8.5 Loose penning of horses

Age	Floor area (sq. m. / head)
Adults	1.2
18-24 months	1.0
12-18 months	0.9
5-12 months	0.7

These figures may vary by up to 10% for adult horses and ponies and up to 20% for young horses and foals. The allowance depends on the weight and size of the horses, their condition, the weather and the probable length of the journey.

9. TRAVEL

9.1 General

- 9.1.1 Travel should be completed with minimal delays. Where delays are unavoidable, adequate care regarding feeding, watering, ventilation and shelter is necessary.
- 9.1.2 Drivers should drive smoothly to prevent bruising and risk of injury.
- 9.1.3 Distressed or injured animals should be given immediate assistance from the driver or attendant. Veterinary, police or RSPCA assistance should be sought as soon as possible to deal with severely distressed or injured animals. If necessary, injured or ill animals should be humanely destroyed by the driver or drover without delay using the methods specified later.

9.2 Temperature

- 9.2.1 When transporting horses in very hot or cold conditions, consider the vehicle construction, its ventilation, the speed of travel, the number of planned stops as well as the number, age and condition of the animals to be carried in planning the length and duration of the journey.
- 9.2.2 Long distance summer travel must only be conducted at night or during the cooler part of the day.

9.3 Feeding and watering

- 9.3.1 All animals must be watered and fed at least once in each 36 hour period. Young animals and lactating mares require feeding and watering every 8 hours. Weather conditions will influence the frequency of feeding and watering requirements.

9.4 In transit inspections

- 9.4.1 Consignments by road should be inspected within 30 minutes of commencing a journey and at least every 4 hours thereafter.
- 9.4.2 A suitable source of lighting should be carried for inspections at night.

10. REST PERIODS

- 10.1 Rest stops extend the total time of a journey and subject animals to unfamiliar surroundings. Unloading and loading of feral horses for spelling should be avoided, as it may impose greater stress than continuing the journey.
- 10.2 In hot weather, rest periods may be disadvantageous to travelling horses. Air flow associated with the movement of the vehicle may be conducive to horse welfare.
- 10.3 Horses should be transported to their destination as soon as possible and delays must be kept to a minimum. If delays occur, adequate care must be given to the animals particularly regarding feeding, watering and ventilation.
- 10.4 After each 36 hours of travel, a spelling period of at least 12 hours should be provided for the horses. Feed and water must be available for at least 12 hours.
- 10.5 During each specified spelling period, horses must be unloaded, have access to food and water, have enough space for exercise and rest, and be separated in accordance with companion groups.

11. UNLOADING

11.1 Requirements similar to those listed under “Loading” apply to unloading, but note that the horses will be tired and stressed after the journey.

11.2 Horses should be unloaded upon arrival at destination and offered palatable food and water. Due to water loss and electrolyte shifts during travel, adequate water intake upon arrival will aid the return of normal hydration.

11.3 Responsibilities at destination

11.3.1 The driver or assigned person in charge must bring to the attention of the person responsible for the horses at their destination, any aspect of the journey that might affect the future welfare of the animals, the last feeding and watering times and full details of any treatment given.

11.3.2 The driver or person in charge must not leave the premises of destination until satisfied that a suitable person has taken charge of the horses.

11.4 Health status on arrival

11.4.1 The health status of the animals should be monitored on arrival. Horses should be bright, alert and have a good appetite for food and water. Veterinary attention should be sought for horses that are depressed, coughing, show lack of appetite or have an elevated body temperature. Some cases of travel sickness will not be apparent for 2-3 days after travel so observation should continue for several days after arrival.

11.4.2 There should be facilities for the humane unloading or slaughter of horses that are unable to walk off because of injury or exhaustion.

11.4.3 Horses that fall ill or are injured should receive treatment as soon as possible.

11.4.4 It is unacceptable to delay the humane destruction of severely injured horses. If a veterinarian is unavailable, this should be done by, or at the direction of, the person in charge at the time.

11.5 Animals requiring emergency euthanasia should be killed humanely using the most appropriate method in the prevailing situation.

12. EMERGENCY EUTHANASIA OF HORSES

12.1 Previous sections of this Code have drawn attention to circumstances in which horses may need to be humanely killed.

12.2 Where euthanasia is necessary, the person responsible for the horses must ensure that it is carried out humanely, resulting in immediate death. Assistance should be sought from a veterinary practitioner, the RSPCA or the police where necessary. In some cases it may be possible and desirable to use intravenous barbiturates to euthanase a horse, but the method chosen will generally be determined by the particular circumstances.

12.3 Persons in charge of commercial transport vehicles that regularly travel to remote areas should ensure that an instrument in good working order and suitable for humane euthanasia is always carried in the vehicle and that they are familiar with its use in horses.

12.4 Euthanasia of animals is an unpleasant experience for most people and spectators should be actively discouraged from viewing the destruction of injured animals.

12.5 The animal should be handled quietly beforehand to ensure it is not unnecessarily distressed or alarmed.

12.6 Use of firearms

12.6.1 The most efficient, safe and widely available method of humanely killing horses during transport is to shoot the animal through the brain at close range.

12.7 Safe use of firearms

- A .22 calibre rifle or a .32 calibre humane killer pistol is adequate for humane euthanasia of most horses. However, use of these calibre firearms must be followed by immediate pithing by destruction of the brain through the bullet hole, or bleeding out.
- Any use of firearms is potentially hazardous to bystanders, and all normal rules for the safe use of a firearm must be strictly applied..
- Persons other than the marksman and a handler for the animal should be cleared from the area or should stand well behind the marksman; ricochets from hard surfaces are always possible.

- Never fire while the animal is moving its head; wait patiently for a quiet interval before firing;
- To provide maximum impact and the least possibility of misdirection, the gun should be fired at a range that is as short as circumstances permit, but never in contact with the animal's head.

12.8 Use of the captive-bolt pistol

- 12.8.1 When used with care this alternative is safer than a conventional firearm.
- 12.8.2 The operator does not have to be an experienced marksman as the instrument's muzzle is firmly pressed against the skull before firing. However, some instruction in the use of this instrument will always be necessary.
- 12.8.3 A captive bolt pistol only stuns the animal and it is necessary to pith by destruction of the brain through the hole made by the captive bolt, or bleed out the animal to ensure death.
- 12.8.4 Blank cartridges for the captive-bolt pistol are colour-coded according to the amount of charge they contain and the manufacturer's recommendations should be followed on the most appropriate blank cartridges for different farm animals.
- 12.8.5 Regular maintenance of the captive-bolt pistol is essential for efficient stunning and avoidance of malfunctions.
- 12.8.6 A head collar or bridle should be put on the animal to enable it to be quietly restrained by an assistant who must stand out of the line of fire. Restless animals should be blindfolded.

Frontal method: The captive-bolt pistol or firearm should be directed at the point of intersection of diagonal lines taken from the base of each ear to the opposite eye. The bullet should be directed horizontally to ensure the brain is damaged .

Temporal method: This is only suitable for firearms; the horse is shot from the side so that the bullet enters the skull midway between the eye and the base of the ear on the same side of the head. The bullet should be directed horizontally.

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