FERAL HORSE MANAGEMENT

Report of a Workshop

Thredbo NSW

29 – 31 March 2004
# TABLE OF CONTENTS

**INTRODUCTION** ................................................................................................. 3

**WORKSHOP OBJECTIVES** ................................................................................ 4

**POPULATION MONITORING** ........................................................................... 4

**IMPACTS MONITORING** ................................................................................. 5

**EVALUATING EFFECTIVENESS OF CONTROL PROGRAMS** .......................... 6

**COMMUNITY EDUCATION/CONSULTATION** ................................................. 7

**RECOMMENDATIONS** ..................................................................................... 7

**SUMMARIES**

- **KOSCIUSZKO NATIONAL PARK**
  - Pam O’Brien ........................................................................................................... 8

- **NAMADGI NATIONAL PARK – ENVIRONMENT ACT**
  - Grant Woodbridge .................................................................................................. 18

- **PARKS VICTORIA**
  - Charlie Pascoe & Dave Foster .................................................................................. 29

- **GUY FAWKES RIVER NATIONAL PARK**
  - Chris Colley ............................................................................................................ 38

- **NSW RSPCA**
  - Steve Coleman ....................................................................................................... 43

- **BUREAU OF ANIMAL WELFARE - DEPARTMENT OF PRIMARY INDUSTRIES, VICTORIA**
  - Naomi Pearson ....................................................................................................... 46

**TRAPPING/MUSTERING/ROPING TECHNIQUES**

- **TRAPPING TECHNIQUES – KOSCIUSZKO NATIONAL PARK**
  - Danny Corcoran ...................................................................................................... 48

- **TRAPPING AND MUSTERING – GUY FAWKES RIVER NATIONAL PARK**
  - Brad Nesbitt ........................................................................................................... 49

- **BRUMBY RUNNING – VICTORIA**
  - Dave Foster ............................................................................................................ 56

**HORSE POPULATION MONITORING**

- **HORSE POPULATION MONITORING IN THE ALPS**
  - Michelle Walter ...................................................................................................... 58

- **HORSE POPULATION MONITORING IN VICTORIA**
  - Cameron Miller ....................................................................................................... 63

- **HORSE POPULATION MONITORING IN KOSCIUSZKO NATIONAL PARK**
  - Dieuwert Reynders ................................................................................................. 71

- **HORSE POPULATION MONITORING IN GUY FAWKES RIVER NATIONAL PARK**
  - Brad Nesbitt ........................................................................................................... 85

**WORKSHOP AGENDA** .................................................................................... 91

**WORKSHOP PARTICIPANTS** .......................................................................... 92

**PHOTOS** ............................................................................................................ 95
INTRODUCTION

Feral horse management across the Alps has a long history and often a very high profile within the community both locally, nationally and sometimes internationally. The interest and passion that the topic attracts has often hampered efforts to protect the environment from increasing evidence of environmental impacts. Past attempts to manage horses have been faced with tremendous scrutiny and adverse publicity. In 1987 ACT Parks destroyed a small number of horses in Namadgi National Park, which resulted in a huge public outcry. A similar public outcry followed the destruction of feral horses in Guy Fawkes National Park in November 2000 and also resulted in a moratorium on aerial shooting of horses within protected areas in NSW.

Over recent years, however, across the Australian Alps National Parks (AANP) and in other areas of Australia, there have been significant breakthroughs in feral horse management. The most humane and cost effective methods of control are not always the most popular with the community and conservation agencies are often forced to use more expensive and time consuming live trapping methods to control ever increasing populations.

In recognition of the community’s views on feral horse management, agency staff across the alps have started to work with the community to develop strategies for sustainable management and in some cases total eradication of horses from an area. There have been major advancements in technique for trapping, mustering, transporting and handling wild horses as well as development in impact monitoring and population surveys.

This workshop provided an opportunity for staff involved in managing feral horses to network and share ideas on techniques and sustainable management strategies. It was the second feral horse workshop funded by the AANP, the first workshop being held at Howman’s Gap, Victoria in 1992.

It is interesting to review the recommendations developed from the workshop 12 years ago, which are still just as valid today:

“Due to the level of public interest, it is unlikely that a single state, or single agency will be able to effect long-term management in isolation.”

Both workshops have embraced the concept of working together across borders to achieve long term management of feral horses and their impacts.
WORKSHOP OBJECTIVES

The objectives of the workshop were to:

- Establish the status of wild horse management across the agencies.
- Look at opportunities for achieving consistency in population monitoring and impacts monitoring.
- Look at opportunities for future collaborative research and technology development.
- Provide a networking opportunity for land managers dealing with this controversial issue.

Twenty-three people attended the workshop from conservation agencies from NSW, Victoria and the ACT. Other organisations attending the workshop included the NSW Department of Agriculture, The Department of Primary Industries Victoria and the RSPCA NSW. The workshop was held over 3 days with a field inspection of some trapping sites at Dead Horse Gap in Kosciuszko National Park.

This document includes copies of the presentations given at the workshop along with a summary of discussions and recommendations.

The workshop recognised:

- The importance of public education re: removal strategies, feral horse impacts.
- The importance of cross border/agency communications intrastate.
- That an individual agency’s management of feral horses could have a direct effect on a neighbouring agency’s programs.
- The importance of open dialogue across agencies to maximise advantages and minimise any possible negative impacts resulting from individual strategies.
- Importance of consistent monitoring techniques so that comparisons can be made and data shared.
- That animal welfare agencies/organisations can be an important ally.
- Not all jurisdictions have the same objective.
- It would be valuable to have a follow up workshop in 2 –3 years. A possible venue being Currango in KNP.

POPULATION MONITORING

In 2000 the AANP funded a PhD research project which included an aerial survey of horse populations across the Alps. The survey was subsequently repeated after the 2002 fires showed a significant reduction of horses in fire effected areas.

Workshop participants discussed the value of these surveys and how horse populations across the AANP might continue to be monitored.

The workshop recognised that the objectives of monitoring were:

1. To monitor changes in population size/density/distribution across a reserve.
2. To monitor changes in population size/density/distribution within an area.
3. To monitor changes in population size to evaluate and readjust removal strategies.
4. To assess population size to enable modelling.
5. To assess population size one off.

Further discussion points included:
- Monitoring was important to secure resources, evaluate the success of programs and compare strategies across the agencies.
- It was recognised that aerial surveys were effective at monitoring broad changes in populations over time.
- The development of more inexpensive methods that were accurate within a smaller area would be crucial for developing, evaluating and refining management strategies and techniques.
- The importance of investigating the suitability of dung surveys to monitor horse distribution and density would be useful because it was much cheaper and easier to implement.
- Other possibilities included line surveys and key point surveys.
- The importance of using similar survey methods across the AANP was recognised to allow for comparisons.
- Co-operative aerial surveys across the AANP should continue to be carried out every 2 to 3 years. The next survey to be conducted in 2005.

**IMPACTS MONITORING**

Why monitor in the first place?
1. To fully understand the problem.
2. To justify programs to the community and secure ongoing funding within agencies.
3. To assess the effectiveness of management actions.

Objectives of impact monitoring were:
- To measure recovery and evaluate the effectiveness of removal strategies.
- To measure impacts to justify resources – monitor condition.
- To monitor processes.

The workshop recognised:
- The importance of impact monitoring and the importance of having a consistent approach across the AANP to enable comparisons across agencies and locations.
- It was agreed that Tumut’s monitoring model used in monitoring horse riding impacts was an excellent model for use on feral horse impacts.
- It was important to be able to link population monitoring with impacts monitoring.
- A possible future project could be to identify key areas within respective agencies where impact monitoring/population surveys will be carried out. Co-operative management strategies can then be agreed and carried out. eg. Cobberas & Pilot or North KNP and Canberra.
Principles of monitoring for wild horse management:

- It would be ideal if monitoring data was comparable across agencies
- It would be desirable to obtain quantitative data rather than just qualitative data
- Monitoring needs to be scientifically robust
- Monitoring needs to be able to be carried out quickly, and easily by non-specialists
- Monitoring needs to be linked back to population monitoring
- Cross border, inter-agency and intra-agency coordination and cooperation is important.
- Monitoring should be sustainable over the long term. If possible monitoring should aim to separate feral horse impacts from other animals i.e.: cattle, riding horses.
- You should not try and monitor everything, just a few key variables.

EVALUATING EFFECTIVENESS OF CONTROL PROGRAMS

The workshop recognised the merit of having a consistent approach to operational data collection across the Alps to monitor and evaluate:

- Humaneness
- Cost of programs
- Staff and public safety
- Capture rates
- Time/efficiency

In order to compare techniques and demonstrate the true costs of the various methods the workshop recommended that each agency measure the following key variables:

→ Time operation takes
→ Personnel (Contractors) required
→ Equipment required(Transport)
→ Number of horses removed
→ Age and sex of horses removed, body condition
→ Fate of horses (particularly if any end up at the abattoir)
→ Injuries to horses and people
→ Environmental impacts of horse capture programs.
→ Horse rider days (if any)
→ Horse transport time from capture point to destination
COMMUNITY EDUCATION/CONSULTATION

Public education is a very important part of wild horse management since public opinion has proven to have the ability to make or break a wild horse removal project.

- Any community consultation program needs to include metropolitan communities.
- Important to keep data on future destination of horses removed from reserves.
- It is particularly important to monitor the percentage of horses that end up at the abattoir.
- Communication strategy for the AANP would be useful
- Importance of RSPCA/DPI etc role to promote views on humaneness of live capture /aerial shooting methods.

RECOMMENDATIONS

The following is a list of projects that the workshop participants put forward for possible funding by the Alps:

- Carry out cooperative aerial surveys across the Alps every 2 to 3 years. The next survey to be conducted in 2005
- Assess the suitability of dung surveys to monitor horse distribution and density because it may be cheaper and easier to implement.
- Fund a project manager to implement and coordinate impact monitoring and population surveys across the Alps through pilot studies at key areas, ie the Pilot, North KNP.
  - To link density with impacts
  - Population/impact modelling
  - Costing
  - Evaluate removal strategies
  - To determine when densities result in an unacceptable level of impact.
- Hold a follow up workshop in 2006 possibly at Currango KNP.
- A project to raise community awareness of feral horse issues in the Australian Alps which could include:
  - A newsletter on updates to agencies. Strategies to include facts/figures
  - Portable displays
  - Websites information
  - Media release of this workshop (humane, traditional and new methods)
With the publication of Banjo Paterson’s poem in the Bulletin in 1890 an Australian legend was born. The Snowy Mountains and horses have become entwined in the national folklore and are now both national icons. The strength of the nation’s connection with this image was demonstrated very powerfully when a Man from Snowy River-inspired performance introduced the Sydney 2000 Olympics to an audience of billions worldwide.
Today the NSW National Parks and Wildlife Service has the responsibility of managing the cultural heritage of the Snowy Mountains while also protecting the natural values for which the park was reserved. These values include many unique landforms such as glacial lakes and cave systems, as well as plants and animals found nowhere else in the world. The alpine area alone contains 21 species of endemic plants. The headwaters of rivers such as the Snowy, Murray and Murrumbidgee are also found within the park and these rivers provide a very high quality source of water for irrigation and electricity for a large part of south eastern Australia.

What's the problem?

Horses have figured in what is now Kosciuszko National Park since the earliest days of European settlement. Their numbers remained at a relatively low level for many years following the establishment of the park in 1944 and the withdrawal of sheep and cattle grazing. However during the past 20 years the horse population has increased as a result of a lack of active management and prior to the 2002 fire there was an estimated 3,000 horses in the park. By the late 1990s horses had begun to appear in the alpine area – the land above 1850 metres where it is too cold for trees to survive. In response to the increase in environmental impacts resulting from feral horses, in 2000 the NPWS moved to develop a management plan for feral horses in the fragile alpine area. This photo shows a shiny fat horse quietly grazing on some alpine daisies.
The public image of bumbies in the Snowy Mountain is similar to those depicted in movies like the Silver Brumby, however the reality is often very different. This slide shows a half starved horse after winter with bad conformation typical of many of the snowy mountain horses.

The alpine area is home to many endemic species including the rare Mountains Pygmy Possum or *Burramys parvis*. This animal can fit into the palm of your hand and has evolved over thousands of year in the absence of large, hard hoofed animals like horses. Feral horses, which are one of the most common species on the planet, are threatening the continued existence of this rare species, which only lives in very isolated locations.
This slide shows some of the damage caused by feral horses in the Park. Horses contribute significantly to soil erosion through the creation of tracks, trampling of vegetation and destruction of stream banks. Horses tracks can drain sensitive alpine bogs and contribute significantly to sediment loads in alpine creeks and streams.

This picture shows horses on the Alpine Way, which are a common occurrence and pose a traffic hazard and risk to public safety. Horses are attracted to the salt used on the road during winter to reduce ice. These horses can be very difficult to see on a wet night.
In developing a management plan for feral horses, the NPWS recognised that there is a wide range of conflicting views in the community about the issue and that it is an issue, which inevitably attracts a high level of media interest. NPWS staff believed that to develop a management plan for horses that would be sustainable into the future, community support was essential. A detailed media strategy was developed to identified NPWS spokespeople, detailed media points and included a news release.

The process of community involvement began with a communications plan. This plan identified key stakeholders, particularly those who could be of the greatest assistance as well as those who had the potential to have a negative effect on the process. A process was detailed for briefing stakeholders in the early stages of the project in order to enlist their support. The communication plan established key messages to be promoted throughout the project and communication tools such as information sheets, newsletters and material for the NPWS website. The plan also identified media monitoring as one means of evaluating the success or otherwise of the communication plan.
Support was sought and gained from the key stakeholders prior to a media announcement about the commencement of the project. Various stakeholders were then approached to be involved in the Wild Horse Management Steering Committee. The steering committee included representatives from local government and the Snowy Mountains community, the park’s advisory committee, horse riders, conservation groups, tourism, scientific experts, animal welfare bodies and NPWS staff.

The steering committee agreed on a range of activities aimed at canvassing public opinion about horse management and possible management techniques. The activities included public workshops, information sessions, providing information on the NPWS website and media. The workshops, information sessions and calls from the public resulting from media articles were all valuable in identifying the key issues of concern about horse management. This process highlighted the very wide range of views in the community about the issue; eg some people want horses to be retained in national parks because of their cultural connections and many people do not realise that horses are in fact an introduced species, while others are adamant that horses must be eliminated from the park as soon as possible and that shooting is the most effective and humane method. While there are very divergent views about horses, there was also agreement that the alpine area of Kosciuszko is significant and needs to be protected, that horses should be managed and that however they are managed, it must be humane. In June 2002 a Draft Wild Horse Management Plan for the alpine area of Kosciuszko National Park was released and placed on public exhibition. This was developed following extensive input from and consultation with the Wild Horse Management Steering Committee.
**Objectives**

- To conserve and protect the natural values of the Kosciuszko alpine area (above the treeline - approximately 1850 metres) by removing horses.
- To ensure the alpine area remains free from horse impacts; and
- To minimise the likelihood of horses causing a traffic hazard on regional roads, in particular the Alpine Way.

As a result of the workshops some agreed objectives were developed. The plan’s key objectives are: to conserve and protect the natural values of the Kosciuszko alpine area by removing horses; to ensure the alpine area remains free from horse impacts and to minimise the likelihood of horses causing a traffic hazard on the Alpine Way. The plan set out guidelines for developing a contract for the removal of horses by trapping, roping and mustering.

**Working with the Snowy River Riders**

While the plan was being finalised volunteer horse riders worked closely with NPWS to undertake a trial of the method of trapping horses in the alpine and sub-alpine area in the Rams Head Range/Dead Horse Gap area. These local horse riders brought a high level of experience and skill which was instrumental in the successful trapping of 13 horses. Service staff were very impressed by the manner in which the horses were handled and loaded on to transport to be removed from the Park.
Volunteers setting up salt block

Riders working horses in yards

Leading horses out
Working with wild horses, or even domesticated horses for that matter, is an inherently high risk activity. For this reason, working with volunteers during the trapping trials became a real occupational health and safety issue for the Region. Volunteers and service staff worked together to assess the risks and develop Job Safety Analysis (JSA’s). Throughout the entire process there has always been an emphasis on safety and to date there have been no accidents.
Some time has elapsed since the release of the Wild Horse management Plan for the Alpine Area of KNP. We now have a contract in place for trapping and have removed in total 70 horses from the Park. The fires of 2002 reduced the overall number of horses in the southern part of the park by approximately 50% and the remaining horses appear to have dispersed into other areas making them more difficult to locate and trap. Each horse costs more than $1,000 to remove and this does not include staff time or costs. The Kosciuszko National Park Draft Plan of Management recommends the development of a park wide feral horse management plan, which would address horse numbers across the Park. This will entail the establishment of a new steering committee and another round of public consultation. It is expected that this planning process will commence after the release of the final POM.

Horse management in Kosciuszko will go on into the future. What has been learnt from the process to date is that staff must be committed to the process of community involvement and this commitment must be ongoing because once the commitment to engage the community is made, it must be continued. While it is a process that is labour-intensive, involving the community does have many benefits. Being open about the process and inviting people to have their say often results in a greater understanding of the issue among the community. It also results in greater ownership of the issue among the key stakeholders. For example, members of the Wild Horse Management Steering Committee have become advocates for the process. Finally and most importantly, it provides the opportunity to build long term positive relationships with particular stakeholders and sections of the community. This support is vital in managing contentious issues.
Policy Framework for Vertebrate Pest Control in the ACT

- ACT Planning and Land Management Act 1988 – Commonwealth Act - land use policies and land requirements in the interests of the National Capital.
- ACT Land (Planning and Environment) Act - guides planning and development, including identification of public land. Requires development of management plans for all public land.
ACT Vertebrate Pest Strategy

- Development identified as an action in the ACT Nature Conservation Strategy.
- Preparation overseen by an expert reference group.
- Follows the framework outlined in National Feral Animal Control Program.
- Broad public consultation.
- Focussed consultation with key stakeholders - animal welfare and rural interests.

The strategic goal of vertebrate pest control in the Australian Capital Territory (ACT) as outlined in the ACT Vertebrate Pest Management Strategy 2002 is:

To contribute to the conservation of our natural and cultural heritage and the maintenance of a productive rural capacity by efficient and effective management of the harmful impact of vertebrate pests.

Feral Horse Management - Background

- Feral Horses were removed from Namadgi National Park in 1987. Decision based on assessment of harmful impacts.
- Whilst program objectives were achieved the action generated considerable public and media outrage.
- No public consultation undertaken, no policy or strategic guidelines in place at the time.
Feral Horse Removal 1987 NNP

Feral Horse Removal 1987 NNP

Feral Horse Removal 1987 NNP

Feral Horse Management Workshop
Recent Sightings

- Feral Horses were sighted by bushwalkers in 2001 and a monitoring program was set up in 2002 to confirm reliability of sightings.
- In June 2003 a group of 7 animals were sighted at the southern western boundary of the park that borders KNP.
- Continued monitoring in July 2003 indicated that animals had crossed back into NSW.
- Further surveillance in September/October indicated their return to the ACT in an area known as Jacks Flat.
- Other sightings have been made in the eastern boundary of the Cotter catchment area of Rock Flat.

Feral Horse Damage – Rock Flat 2003

Feral Horse Management Workshop 21
Feral Horse Damage – Rock Flat 2003

Feral Horses Namadgi National Park - Jacks Flat Feral Horse Camp.

Feral Horses Namadgi National Park - Jacks Flat Feral Horse Camp.
Stallion Pile – Jacks Flat

- The Park is 105900 Hectares in size.
- Namadgi National Park is located at the northern end of the Australian Alps and covers 43% of the ACT.

Map of Recent Sightings

- Environment ACT land management areas

NPN Includes headwaters of the Cotter River, principal water supply for over 350,000 people.
- Area includes 10 nationally important wetlands, including 1 of international importance (RAMSAR). Habitat for endangered Corroboree Frog.
- Wetlands essential filters for water quality, also prime habitat for horses.
Feral Horses Namadgi National Park

- In recent years population has been increasing in adjacent areas of NSW and potential exists for feral horses to again establish in the park.
- Environment ACT developed a Feral Horse Management Plan in 2003, aiming to compliment the plan being developed by NSW NPWS.

Feral Horses Namadgi National Park – Bushfire Impacts

- January 2003 Bushfires had severe impacts on the park and all wetlands suffered significant damage.
- Ginini Wetlands (RAMSAR) badly affected, sphagnum peat loss to a depth of 30cm burnt: growth rate 3.5cm/century.
- Domestic water supply catchment was severely impacted and was shut down for many months.

Bushfire Damage – Ginini Wetlands
On advice that feral horses had entered the catchment area and briefings from stakeholder groups on potential impacts the ACT Government announced publicly that feral horses would not be allowed to establish in the catchment area.

Considerable public reaction: both strong support and outrage.

The Feral Horse Management Plan draws heavily on information contained within Kosciuszko Plan. Interagency liaison between ACT and NSW has been occurring.

Identifies zones for management response including barrier fencing, depletion through trapping and removal by humane lethal control.

Feral Horses in Jacks Flat area of NNP.
Feral Horses Management Zones

Zone 1 – Prevention/Strategic Barrier Fencing

- Fencing sites identified to prevent entry from NSW in the immediate to medium term.
- Blind fencing was installed in the Murrays Gap area.
- Zone 1 areas are chosen if they have narrow access routes either naturally or through vegetation loss in bushfires.
- Fencing is not seen as a long-term solution as damage to fences through fallen trees and vandalism associated with illegal access is likely.

Feral Horses Management Zones

Zone 2 – Trapping and Removal

- Zone 2 areas have been declared as areas where removal by trapping is possible.
- These areas are characterised as having suitable road/trail networks to provide transport of trap yards and the safe removal of animals.
- Zone 2 must also be located away from significant sub alpine wetland sites and not pose an immediate threat to water quality values.
- Zone 2 areas also correlate with the more intensively visited areas of the park.

Traps Yards & Salt Block – Jacks Flat 2004
Feral Horses Management Zones

Zone 3 – Humane Destruction by Culling

- Zone 3 areas include all the Cotter water catchment area, the identified nationally listed wetlands and the internationally listed Ginini Wetlands.
- Lethal destruction by firearms (including aerial culling) still remains possible under the Feral Horse Management Plan with the approval of the Minister.
- A communications strategy has been developed to ensure all relevant stakeholders are aware of the Feral Horse Management Plan and its application.

Feral Horses – Communications Strategy

- Horses are referred to as Feral animals (no references to wild horses or brumbies).
- Stresses that horses have arrived from interstate and are not part of a local population.
- Feral horses pose a risk to water supplies, fragile environments and endangered species.
Feral Horses – Communications Strategy

- Seeks supporting pre-emptive media stories highlighting environmental risks of allowing horses to remain in park.
- Emphasises that all possibilities to provide effective and humane removal will be strongly considered prior to any decision to destroy.
- Maintains a consistent approach in line with the Feral Horse Management Plan.

Feral Horses - What changed from 1987 to 2003 announcement

- Current decision made with full political backing from Minister.
- Stakeholder consultation has occurred although at the peak body and not individual levels.
- Far greater public acceptance of the need for action than in 1987. More time to get information out to the community.
- A strategic framework – Vertebrate Pest Strategy is in place to support the decision.

Update of March 2004 Attempts at removal.
Introduction
In Victoria, ‘feral horses’ is the term generally used to describe free-ranging horses on Crown land, rather than ‘wild horses’ or the sometimes emotive term ‘brumbies’.

Feral horses are one of the largest introduced feral herbivores in Victoria. Others include cattle (mostly agisted under licence but some feral), various species of deer (sambar being the largest), pigs (omnivorous), goats, hares and rabbits. Many of these occur sympatrically with feral horses in parts of the Victorian Alps.

Both Parks Victoria (managers of Victoria’s network of parks and conservation reserves) and forest managers within the Department of Sustainability and Environment (DSE) are keen to better understand and manage feral horses, and particularly to understand and mitigate the impacts they may be having on the natural values of the areas in which they occur.

Recreational horse riding, cattle and other introduced herbivores also have impacts on natural values. Recreational riding is managed through codes of conduct, management plans, regulation and enforcement, so is not addressed in this paper. Cattle are managed under licence, although they still have significant impacts on natural values (eg Williams et al. 1997; Groves 1998).

In some parts of the Alpine National Park, feral horses are thought to outnumber agisted cattle. In addition, the horses are present all year, whereas, in most areas, the cattle are only in the park for about 5 months, over summer and autumn. It is necessary to manage the impacts of both of these large, hard-hoofed introduced herbivores.

Distribution
In Victoria, feral horses occur in alpine and adjacent areas, mostly in the Eastern Alps Unit of the Alpine National Park and adjacent conservation reserves, State Forest and forested freehold lands, primarily east of the Benambra-Corryong Road. A small population occurs on the south-western fall of the Bogong High Plains. There are scattered records of individuals or small mobs from elsewhere in the alpine area and East Gippsland (Dyring 1990, Menkhorst 1995, EIS 2004). The feral horse populations in the Cobberas-Tingaringy area are contiguous with populations in NSW (Dyring 1990, Walter 2002).

An isolated feral horse population occurs in State Forest and State Park in the Barmah Forest. This population is restricted to the southern side of the Murray River, with no feral horses occurring in the adjacent Millewa State Forest in NSW (J. Kneebone, pers. comm.).

Anecdotal information, together with the scattered distribution of isolated records, suggests that there is ongoing human-assisted population and distribution enhancement in some areas.
Abundance
Data on the abundance of feral horses in Victoria are scarce. Dyring (1990) made estimates of the Victorian alpine population, based largely on anecdotal information. Under an AALC-sponsored project, Walter (2002) estimated the population in the Alpine National Park (Cobberas, Davies Plain, Buenba, Buchan River and Bogong High Plains areas, where the majority of feral horses were thought to live), from aerial transect counts, to be approximately 2000 individuals in 2001 (2086 +/-586 SE). A follow-up population assessment using identical survey methodology after the widespread fires in January – March 2003 found the feral horse populations across the Australian Alps to have declined to about half their pre-fire numbers in April 2003 (Walter 2003). Population data for individual populations or states was not provided, although an approximate estimate can be back-calculated from the overall density (estimated @ 0.872 (+/- 0.29) horses / ha), which equates to 1010 (+/- 336) horses in the main areas occupied by feral horses in the Alpine National Park.

In Barmah Forest, there are thought to be approximately 200 – 300 feral horses (Menkhorst 1995; J. Kneebone, pers. comm.).

Ecological Impacts
There have been no studies of the ecological impacts of feral horses in Victoria to date and relatively little research from elsewhere in Australia (eg Dyring 1990 in the southern section of Kosciuszko National Park). From studies elsewhere (see Dyring 1990 and references in NPWS 2003), and anecdotal observations in Victoria, the following ecological impacts are of concern:

- Spread of weeds;
- Trampling of native vegetation;
- Pugging (the creation of deep hoof prints in soft soils, especially in and around swamps, bogs and other wet areas);
- Selective grazing of preferred plant species;
- Close grazing (alteration of vegetation structure and promotion of grazing-tolerant species);
- Track formation;
- Soil compaction;
- Increased erosion of areas disturbed by horses;
- Stream bank destabilisation;
- Increased sediment loads in water due to erosion and bank stabilisation;
- Increased nutrient loads in water (through faeces).

It is likely that domestic horses have similar impacts, particularly where they are ridden or yarded off formed tracks. Within the areas where the majority of feral horses occur in the Eastern Alps Unit of the Alpine National Park, domestic horses probably have much less of an impact than feral horses, due to a combination of lower numbers and shorter stays in the park. However, the relative impacts of domestic horses elsewhere in the Alpine National Park and Barmah Forest, where feral horse numbers are lower, could be proportionately greater.

Other issues
Like mountain cattle, feral horses (as ‘brumbies’) have become a link with the past, as well as part of the mountain folklore, through stories and films such as “The Man from Snowy River” and “The Silver Brumby”. Some sectors of the community regard both horses and cattle in the high country and Barmah Forest as cultural icons, although to others they are
anathemas in the essentially natural and fragile environments where feral horses occur in Victoria.

Feral horses have been roped by brumby runners in eastern Victoria since at least the late 19th century (Walter 2002). It is a practice still carried on today by a small number of highly skilled horse men and women (Walter 2002, Foster 2004). Anecdotal evidence suggests that there may be a considerable amount of illegal brumby running in the Alpine National Park and adjacent State Forests, although it is impossible to gather accurate data on this. The Alpine Brumby Management Association (ABMA), which evolved from a loose collection of Gippsland-based brumby running clubs after the formation of the Alpine National Park in 1989, regard both brumbies and brumby running in the Alpine National Park and adjacent State Forests as part of the heritage of the Alps. Their bumper sticker is subtitled “Preserving the spirit of freedom and heritage in the high country”.

There are a small number of web sites devoted to brumbies in Australia. One such site, ‘Brumby Watch’, keeps close track of how feral horses are managed in various parts of Australia. Another site encourages site visitors to pay to adopt a brumby on private land – effectively a ‘brumby farm’.

Some visitors to the Victorian high country and Barmah Forest are attracted by the opportunity of seeing wild horses and a small number of tourism operators, particularly some horse-riding tour operators, promote their tours by advertising the chance to see one.

No studies of the deleterious impacts of feral horses on the public in general, nor park and forest visitors in particular, in Victoria have been conducted. However, there is considerable anecdotal information emerging. Prior to the 2003 wildfires, there were increasing numbers of reports of feral horse impacts on visitors in the Alpine National Park, including:

- Feral horses wandering through camping areas;
- Reports of stallions confronting park visitors;
- Concerns about the safety of park visitors who are not “horse savvy”;
- Degraded drinking water quality due to horse faeces in water and horse-damaged stream banks and riparian vegetation;
- Public complaints about feral horse numbers and impacts, particularly in areas of high population density, such as Cowombat Flat in the Cobberas Wilderness Area.

Reports of these sorts of impacts have decreased post-fire, probably due to both reduced horse numbers and reduced visitor access to remote parts of the park in the first year post fire.

There is considerable antagonism in some areas of the Victorian alps between cattlemen and brumby runners. Some cattlemen regard feral horses as competitors for pasture. Park and forest managers have received occasional reports of illegal shooting and snaring of feral horses on licensed grazing areas. In late 2002 a number of illegal snares, which were placed so as to capture feral horses around the neck, were found and removed from the Alpine National Park, south-east of the Bogong High Plains. Unfortunately, there has been insufficient evidence obtained to enable those responsible for these illegal activities to be identified and prosecuted.
In Barmah Forest there are similar issues in relation to feral horses and licensed cattle grazing, but there seems to be less conflict between the pro-horse and pro-cattle parties (J. Kneebone, pers. comm.).

Damage to aboriginal sites by horses in Barmah Forest is a further concern, although the extent of this and the relative contributions of feral and domestic horses, cattle and other grazing animals is not clear (DCE 1992a).

**Legislation and Policy**

Under the National Parks Act (1975), feral horses are exotic animals and are therefore required to be controlled or eradicated in State, National and other parks managed under that act. Under the Forests Act (1958), feral horses (along with asses, mules, pigs, goats and sheep) are defined as cattle. They are the property of the crown and their removal requires written authority from the secretary of the Department of Sustainability and Environment (DSE). Nevertheless, they are also regarded as pest animals in State Forest (Lugg et al. 1993).

The current Parks Victoria policy on feral horses refers staff to the previous National Parks Service policy (NPS 1995). This policy considers that properly controlled and regulated brumby running is an appropriate method of feral horse control. The policy does not address other means of control, other than to prohibit poisoning or shooting, due to perceived public opinions about these lethal control techniques.

The National Park Service policy provides for brumby running, under permit, only by members of brumby running clubs and requires that:
- all activities be conducted with due consideration of animal welfare;
- permits contain adequate insurance and indemnity provisions;
- the Director of National Parks be consulted prior to the issuing of any permit;
- basic data on numbers of participants and horses captured on each brumby run be recorded;
- brumby running not occur in Wilderness or Reference Areas.

The policy also contains a range of suggested permit conditions.

**Management Plans**

The approaches to feral horse control and the management of brumby running in the Alpine National Park Management Plan (DCE 1992b, c) are in close accordance with the former National Parks Service policy on these issues (NPS 1995). The plan (which also covers adjacent Historic Areas, but not adjacent State Forest) does not contain specific management objectives for feral horses, but rather contains generic objectives for all pest animals. These include:
- Control or eradicate introduced animals.
- Use the most humane control methods possible.
- Minimise impacts on non-target species.

All of the management actions concerning feral horse control relate to the management of brumby running as a control technique. The plan states that brumby running cannot be justified as a recreational activity, but could be used as a tool to control feral horse numbers.

The Barmah Management Plan (DCE 1992a) includes a strategy to remove all feral horses from the forest by the most practicable and humane method.
Historical Management

Prior to the formation of the Alpine National Park in 1989, feral horses in the alpine area of Victoria were controlled by unmanaged roping, trapping and shooting by cattle grazing licensees and brumby runners. Following gazettel of the park, feral horses were controlled in an ad-hoc manner in many parts of the alps through the issuing of permits to Gippsland-based brumby running clubs. The permit system helped to regulate the activities of the brumby runners, but it is not known whether it had any significant impact on feral horse populations. In addition, as not all brumby runners wished to join clubs, an unknown level of unauthorised brumby running continued to occur.

Although permits for brumby running were issued for several years, it was determined in 2000 that there was actually no head of power in the National Parks Act to permit the activity. Legal advice was that a contract, with similar conditions to those in the permits, be developed instead. Unfortunately, a contract arrangement places a much greater level of responsibility for the management of the activity on the management agency than does a permit. Contracts have certain other benefits, however, such as the ability to set targets for numbers of horses to be removed and target specific areas for horse control. There is also a potentially greater capacity to obtain accurate details of horse catching effort, locations and outcomes.

Feral horses in Barmah Forest have been removed in the past, by various parties, using a range of methods, including (J. Kneebone, pers. comm.):

- trapping, using a mare to lure horses into an adjacent paddock;
- shooting; and
- brumby running.

Current Management

Parks Victoria and DSE are yet to develop and implement management strategies for feral horses in either the alps or Barmah Forest. Nevertheless progress in feral horse management is occurring on a number of fronts in the alps.

In the Alpine National Park, Parks Victoria is working in partnership with the ABMA to reduce feral horse populations in target areas by roping and mustering. Under the feral horses contract between the two organisations, Parks Victoria covers the ABMA’s public liability and member-to-member insurance (through an additional levy on PV’s corporate insurance policy) while ABMA members are engaged in feral horse control activities in areas managed by Parks Victoria. The contract, which is renewable annually, includes a range of conditions relating to animal welfare, occupational health and safety, the carriage and use of firearms, prohibition of dogs, environmental protection, notification of capture trips, and reporting on trip outcomes. Each ABMA member wishing to participate in a feral horse catching trip is required to sign a sub-contract with the ABMA, which formalises their adherence to the contract conditions and ensures their insurance coverage.

The feral horses contract sets an annual target for the numbers of horses that should be removed from particular areas. Most of these areas are in the Eastern Alps Unit of the Alpine National Park and have been identified by the ABMA as areas where brumby running was already occurring prior to the contract being entered into. An additional area, on the south-eastern fall of the Bogong High Plains, was also identified for feral horse control by Parks Victoria staff. The Bogong High Plains population is relatively small (actual size unknown, but perhaps as few as 100 horses post-fire in 2003) and disjunct from populations elsewhere in the alps. Local Parks Victoria staff would like to eradicate this
population to ensure it does not expand into other areas of the park. However, the ABMA does not wish to see, let alone contribute to, the elimination of any feral horse population.

Parks Victoria has fenced a few small areas in remote parts of the Eastern Alps Unit of the Alpine National Park to exclude large introduced herbivores. In conjunction with the Friends of the Cobberras, eight paired, fenced and unfenced monitoring plots were established on predominantly grassy flats at Native Cat and Cowombat Flats in early 1999. Quantitative floristic data was collected in each fenced and unfenced plot in 1999 and photographic monitoring has been undertaken annually since. It is hoped that further floristic monitoring can be undertaken in 2004/05 (M. Dower, pers. comm).

The photo monitoring to date shows greater vegetation cover, especially along stream banks, and stream-bank stability within the fenced plots compared with the adjacent unfenced plots. Following the 2003 Alpine Fires, the vegetation in the fenced plots appeared to be far more effective in trapping silt & ash washed off adjacent slopes than it was in the unfenced plots (J. Edwards, Friends of the Cobberras, pers. comm. to M. Dower). Due to the occurrence of cattle grazing under licence at both Native Cat and Cowombat Flats, it is not possible to distinguish the relative contributions of feral horses and cattle to the observed differences between the fenced and unfenced plots.

In autumn 2002 Parks Victoria erected feral horse and domestic cattle exclusion fences around two sensitive sub-alpine bogs on Davies Plain. Fenced sites were selected on the basis of records of threatened bog-dependent herpetofauna (Clemann et al. 2001; Clemann 2002; N. Clemann, pers. comm. to M. Dower).

Fences in all three locations, particularly Davies Plain and Native Cat Flat, have been periodically vandalised by park visitors and some have been broken by feral horses striking them. The Davies Plain exclusion fences also sustained damage during the 2003 fires, but have since been repaired. Evidence from faeces and tracks outside the fences, but not inside, indicates that when in good repair the fences effectively exclude both feral horses and domestic cattle. However, feral horses, in particular, have been inside some of the exclusion areas, especially at Native Cat Flat, during periods when fences have been in disrepair, thereby limiting the usefulness of some of the monitoring data. Options for increasing the visibility of the fences to horses, but not park visitors, are currently being considered (M. Dower, pers. comm).

In areas of State Forest adjacent to the Alpine National Park, there is an increasing awareness of the occurrence of feral horses and unmanaged brumby running, and the environmental and other management issues these could be causing (G. Digby, pers. comm). However, as yet, there is no active management.

In the Barmah forest, there is also no feral horse management at present.

**Regulations and enforcement**

The control of unauthorised brumby running has long been an issue of concern for those legally catching feral horses under permit or contract arrangements. However, until their most recent revision (2003), the park regulations were inadequate to regulate unauthorised feral horse capture. For example, it was not illegal to chase, hold or lead a feral horse in, or remove a feral horse from, a park. Rangers would need to literally witness a person putting a noose around a feral horse’s neck to enable a prosecution to succeed. Naturally, with both feral horses and brumby runners galloping at high speed through the bush, this was most unlikely to occur, and never did.
The new Park Regulations (2003) make it illegal to disturb, harass, remove, hunt, capture, take, kill, injure or otherwise destroy or interfere with any fauna or other animal, including any feral animal. It is hoped that this will make it much easier to obtain points of proof for prosecutions of illegal feral horse catching. It is hoped that this, in turn, will encourage those wishing to capture feral horses in parks and reserves to join the ABMA and do so legally.

**Future Management**

There are a number of key issues that need to be addressed to improve the management of feral horses in Victoria the future.

Developing a management strategy for feral horses needs to be a high priority. Currently there is no strategic direction for feral horse control, nor an opportunity for formal public consultation in the management of feral horses in Victoria. Existing policies do not address all relevant issues, nor recent developments in feral horse management in the Alps.

A feral horse strategy would need to include specific management objectives for each population or geographic area. Currently, park managers are working to very broad, medium-term objectives, as follows:

<table>
<thead>
<tr>
<th>Locations</th>
<th>Broad management objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alpine National Park – east of Benambra – Corryong Road (including Bogong High Plains).</td>
<td>Manage feral horse populations so as to minimise impacts on environmental values.</td>
</tr>
<tr>
<td>Alpine National Park – west of Benambra – Corryong Road.</td>
<td>Eradicate feral horses.</td>
</tr>
<tr>
<td>Barmah Forest</td>
<td></td>
</tr>
</tbody>
</table>

These management objectives are poorly defined, not time-bound, difficult to measure and, in the case of the Alpine National Park, have not been subject to community consultation, nor endorsed by senior management.

The objectives of the Alpine Brumby Management Association for feral horses in the Victorian Alps are to manage all populations in perpetuity through sustainable harvesting and to maintain a healthy gene pool, if necessary through periodic introduction of new blood. They wish to harvest primarily through brumby running, and are totally opposed to lethal control methods (although they do not object to live-captured horses being disposed of at a knackery).

While at this stage Parks Victoria and the ABMA do not share a long-term management objective for the feral horse populations in the Alpine National Park, in the short term the two organisations are keen to work together to achieve mutually satisfactory outcomes in specific areas of the park. They have agreed to reassess the mutual benefits of their joint working relationship on a regular basis. Either organisation can withdraw from the partnership when the feral horses contract expires annually. Parks Victoria has reserved the right to seek or engage other partners or contractors to control feral horses in the Alpine National Park in the future. Under its contracting and tendering policies, Parks Victoria would be obliged to consider offering a feral horse control contract to any other organisation or company that could provide similar services and meet the same animal welfare, occupational health and safety, and other requirements as the ABMA.
Parks Victoria has reconfirmed to the ABMA its policy that brumby running purely for recreational purposes is not acceptable. It can only be undertaken as part of a feral horse control program.

It is important for Parks Victoria to understand the outcomes of its investments in feral horse control, or indeed the impacts of undertaking no control. To do this, Parks Victoria is implementing a monitoring regime that will enable changes in feral horse populations to be documented over time (see Miller 2004).

In the future, it is hoped to commence a program of monitoring changes in the condition of environmental values sensitive to feral horse impacts. However, this entails considerable challenges, including:

- A wide range of values are considered to be potentially at risk from feral horses and many of these would require different monitoring methods.
- It would be necessary to distinguish the impacts of feral horses from those of domestic horses, licensed cattle and other feral and native animals.
- There is probably little existing data which could be used as a baseline to begin a monitoring program, so any program would probably need to begin from scratch.

Through the Australian Alps Liaison Committee (AALC), Parks Victoria is hoping to undertake further cooperative research, monitoring and control programs, in particular with the adjoining southern section of Kosciuszko National Park. Discussions are currently being held between Parks Victoria and NSW NPWS staff to commence trialing of Parks Victoria’s recently developed monitoring protocols. DSE staff in Gippsland have also recently expressed a desire to undertake more active management of feral horses in State Forest in Gippsland, particularly on the Nunniong Plateau, east of Omeo.

Along the Murray River, there are currently several key strategic matters affecting the future management of the Barmah Forest, and therefore the feral horses within it. These include:

- A cooperative land management agreement with the Yorta Yorta people.
- An proposed investigation into the uses of Crown land in the Murray River Red Gum forests by the Victorian Environment Assessment Council (VEAC).
- A proposal for a cross-border national park comprising the Barmah Forest in Victoria and the Milawa Forest in NSW.

Until these major strategic issues are resolved it is unlikely that the potentially sensitive issue of feral horse eradication will be tackled with any vigour.

**Conclusion**

In the Victorian alps, there is an increasing momentum of desire and intent to better understand and manage feral horses populations and the impacts they may be having. With community partnerships and inter-agency and cross-border cooperation (through the AALC) we are confident of significantly improving feral horse management over the next decade.

**Acknowledgments**

John Kneebone and Glenn Digby provided information on feral horse management in Barmah Forest and State Forest in East Gippsland, respectively. Mike Dower provided information on the feral horse fences in the Eastern Alps Unit. Cameron Miller provided valuable comments on a draft of the manuscript.
References


Personal Communications
John Kneebone, Ranger in Charge, Parks Victoria, Nathalia.
Mike Dower, Ranger, Parks Victoria, Omeo.
Glenn Digby, Fire Recovery Project Officer, DSE, Swifts Creek.
Guy Fawkes River National Park

Chris Colley

Feral Horses in Guy Fawkes River National Park

Guy Fawkes River National Park

• significant large National Park
• 1st gazetal 1972
• Over 70 000 hectares of rugged river and dissected gorge country
• Aberfoyle, Sara, and Guy Fawkes Rivers

Plants

• Dominated by open eucalypt woodland
• dry rainforest
• grassy river valley flats
• Moist open forest
• riverine forest
• significant plants

Grevillia beadleana
Animals

**Common**
grey kangaroos, wallaroos, wallabies

**Rarer species**
- rock wallaby
- platypus
- greater glider
- powerful owl
- peregrine falcon
- eastern freshwater cod

Background

- Grazing operations first commenced in the area around the 1860s.
- By the 1950s most of the Guy Fawkes Valley was held under grazing leases
- National Park gazetted in 1972.

Where horses occur

- Feral horses found mainly along the grassy flats
- Also slopes and ridges
- Some range in the plateau areas on the western borders of the park.
Horse numbers

• 1970's early 80's very few horses recorded in the park.

• 1990's estimates ranged from 180 to 400

• 2000 more than 600

Horse Biology

• small social units
  – harem groups
  – bachelor groups

• females mature 12 to 24 months and can foal each year

• population can increase by 20% per year

Environmental Impact

Observations over the last 25 years have identified:

• Spread of weeds
• pads causing extensive erosion
• overgrazing causing slumping and gully erosion
Research & Monitoring

Studies on environmental impacts, location and movement

- Andreoni (1998) found extensive erosion and high density of manure
- Role of horses in the spread of weeds Taylor (in press) found weed species survived gut fermentation.
- Location and seasonal movement of horses
Issues Associated with Control include

- Humane treatment
- Moving horses out of their territories
- Retreat to higher ridges to escape muster
- Remote rugged terrain
- Removing horses from the park

History of control

- Roping
- Chemical immobilisation
- Mustering
- Aerial Shooting
NSW RSPCA

Steve Coleman

Philosophical Approach

Animal Welfare

versus

Animal Rights
RSPCA National Policy & Position

1.10.1 RSPCA Australia defines a feral animal species as any non-native vertebrate species the population of which survives and reproduces in the wild. RSPCA Australia recognises that introduced animals which run wild adversely affect natural Australian environmental systems, endanger native animal species, jeopardise rural production and be carriers of pests and diseases.

Ref: RSPCA Australia, Policies & Position Papers, 2001 Edition

Cont’d

1.10.2 RSPCA Australia accepts that from time to time it will be necessary to reduce or eradicate numbers of these animals. Any such reduction or elimination program must, however, recognise that these animals require the same level of consideration as that given to domestic and native animals and must, therefore, be humanely conducted under the direct supervision of the appropriate government authorities.

Ref: RSPCA Australia, Policy & Position Papers, 2001 Edition

….let’s take a closer look
Legislative Requirements

Prevention of Cruelty to Animals Act 1979

…… unreasonable, unnecessary, unjustifiable

What does cruelty mean?

Cruelty to an animal is defined within the POCTA as being:
- beaten, kicked, killed, wounded, pinioned,
- mutilated, maimed, abused, tormented, tortured,
- terrified, or infuriated;
- over-loaded, over-worked, over-driven, over-ridden, or over-used;
- exposed to excessive heat or cold;
- inflicted with pain

Who is responsible?

Person in charge

either,

the owner of the animal,
a person who has the animal in the person’s possession or custody, or under the person’s care, control or supervision
1) Who is the Bureau of Animal Welfare (BAW) / what do we do?

BAW is the animal welfare unit in the Department of Primary Industries, and is responsible for the development & maintenance of animal welfare legislation, codes of practice and policy. Auditing, including inspection of premises, is also undertaken by BAW for scientific establishments that conduct tests on animals, council pounds, rodeos, etc. We also play a large role in education of the community and municipal councils re: responsible pet ownership.

2) What is BAW's position regarding management of feral horses?

BAW is not concerned with the ethics of the issue, such as whether or not to control populations, or whether or not to rehome captured animals rather than to destroy them. BAW is concerned with the welfare of the feral horses in any management situation, eg. in their welfare as feral animals left to roam, whether the method of capture/destruction is humane, and the potential welfare consequences for the horses if rehomed.

3) Relevant legislation in Victoria (other States will need to check their similar legislation, as it is likely to be slightly different)

The Prevention of Cruelty to Animals Act 1986 and Regulations 1997 cover animal welfare and animal cruelty in Victoria. Cruelty may be from abuse and/or neglect. Codes of Practice have been developed under the Act to provide more detailed guidelines on acceptable standards of animal management and handling. Codes relevant to management of feral horses in Victoria are the Code of Practice for the Welfare of Horses (currently under review), Code of Practice for the Land Transport of Horses, Code of Practice for the Welfare of Horses in Bush Racing, and perhaps the Code of Practice for the Welfare of Horses in Horse Hire Establishments. While some of these codes are not directly related to feral horse management, they contain some standards that would also be relevant to feral
horses. There is also a National Model Code of Practice being developed for Feral Livestock, however this has not yet been completed.

The Parks Act and Regulations in Victoria are not exempt from the Prevention of Cruelty to Animals Act or Regulations, so it is important that any procedure involving animals done under the Parks Act/Regs complies with the animal welfare legislation to avoid prosecution. Inspection and prosecution under the Prevention of Cruelty to Animals Act can be undertaken by the RSPCA inspectorate, DPI authorised officers, authorised officers from municipal councils and the Victoria Police.
TRAPPING/MUSTERING/ROPING TECHNIQUES

Trapping Techniques – Kosciuszko National Park

Danny Corcoran

For approximately two years local volunteers have assisted the Service by conducting trapping and roping trials in the Ramshead Range and the Pilot Wilderness Area of Kosciuszko National Park.

Trapping
- Portable yards were flown into the various locations, erected and left open with salt blocks placed inside as a lure. Initially salt was laid out and the yards erected following the first sign of horses at the salt, as it was believed that the horses may shy from the newly erected yards. This was not the case.
- Once all horses in a group were thought to be coming to the yards they were set.
- A basic rope trigger mechanism is used to close a spring-loaded gate on the yards.
- The yards were made up of two areas so it was possible to close horses, that may have been part of a larger group, into one yard and reset the trap and capture the rest of the group.
- Once captured in the yards, horses were handled by the riders to quieten them down. At this point a halter was placed on the horse.
- Horses are then led from the yards to be tethered prior being lead directly to the transport vehicle or lead directly to the transport vehicle.
- Horses are then loaded onto trailers and removed from the park.

Roping
- (or running) is the most widely practised method of horse catching used in the Snowy Mountains and in the Victorian Alps.
- Horses are chased by a number of riders with a primary catcher getting close enough to throw a catching rope over its head.
- The horses are then lead to temporary yards of directly to transport.

Safety
- No injuries have been sustained during the trials
- The operational planning was guided by the NPWS OH&S manual. A job Safety Analysis (JSA) was developed with the participants.
- Th JSA included daily briefings and debriefs.

Footnote (update since the workshop)
- Since the commencement of the contract arrangement in April 2004, 20 horses have been trapped and removed from the park by the contractor.
- Considering that this has been during a period of heavy snowfalls and at a time when much of the area is closed to vehicle access we regard this as impressive and augurs well for the upcoming summer.
- The commencement of the contract has not been without incident with the theft of a $6500 set of stock yards.

Feral Horse Management Workshop 48
Trapping and Mustering – Guy Fawkes River National Park

Brad Nesbitt

Capturing horses in Guy Fawkes River National Park

Brad Nesbitt
Parks and Wildlife Division
Department of Environment and Conservation NSW

Legend

- Guy Fawkes River Declared Wilderness
- Locality
- Roads
- Trails
- Guy Fawkes River State Conservation Area
- State Forest Estate
- NPWS Managed Lands in the Guy Fawkes River Area
- Watercourse
Some Local issues

- Remote, rugged terrain
- Limited Access
- Feed and water not limiting
- Horse behaviour
  - territories
  - response to stress

Key considerations

- Humane technique
- Practical and cost effective
- Environmentally sound
- Satisfies legislation and government policy
Horse Capture Techniques in Guy Fawkes River NP

- Roping
- Immobilisation using a tranquiliser
- Mustering & trapping
- Passive entrapment
Mustering and trapping

Advantages
– Relatively humane technique
– Effective at capturing horse
– Target individual animals or mobs

Disadvantages
– Requires suitable trap sites and skill in locating and setting up trap
– Environmental impacts at trap site
– Time consuming & therefore can be expensive
– Possible injuries to horses
– Difficult to remove horses from remote areas after capture
– Hazardous activity for musters

Guy Fawkes River NP
Trial Horse Capture Program 2004/05

Passive entrapment
– Trapping horses in yards using lures
– Trapping horses in a trap paddock

Mustering
– Mustering horses into a net trap

Coacher horses

Results of Trial Programs
1992 - 1999

<table>
<thead>
<tr>
<th>Year</th>
<th>Control Technique</th>
<th>No./Year</th>
<th>No. Horses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1992</td>
<td>Darting</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>1993</td>
<td>Mustering into STEEL YARD trap</td>
<td>2</td>
<td>28</td>
</tr>
<tr>
<td>1994</td>
<td>Mustering into STEEL YARD trap</td>
<td>1</td>
<td>27</td>
</tr>
<tr>
<td>1995</td>
<td>Mustering into LIGHT NET trap</td>
<td>3</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>Mustering into HEAVY NET trap</td>
<td>2</td>
<td>23</td>
</tr>
<tr>
<td>1998</td>
<td>Mustering into HEAVY NET trap</td>
<td>1</td>
<td>4+</td>
</tr>
<tr>
<td>1999</td>
<td>Mustering into HEAVY NET trap</td>
<td>1</td>
<td>18</td>
</tr>
</tbody>
</table>
Brumby Running – Victoria

Dave Foster

Feral horses (brumbies) originated from early farms and settlements in the north east of Victoria and along the New South Wales - Victoria border, where horses were released or escaped into the surrounding areas. As horses were required to augment numbers on farms and for other purposes brumby running developed and became part of the local culture.

Brumby running has become a “traditional” activity within the “High Country” over many years with brumby running clubs initially based at Tubbut through to Benambra, Mitta Mitta and south to Buchan. Many of these clubs had members scattered far and wide drawing from as far away as Melbourne.

Prior to the formation of the Alpine National Park brumby runners operated across wide areas removing feral horses that competed for pasture with cattle on grazing licence areas.

With the formation of the Alpine National Park, brumby running was seen as an activity not compatible with national park objectives but could be used as a management tool to control numbers (Alpine National Park Management Plan 1992). Permits were issued to clubs and individuals in an attempt to regulate the removal of feral horses but were withdrawn and replaced by the feral horse removal contract with the Alpine Brumby Management Association (ABMA) in 2000.

Methods
Historically a variety of capture methods were used which included mustering, roping and trap yards.

Mustering consists of groups of riders herding horses into concealed wing fences that lead into a yard. Horses are driven into the winged enclosure and forced into the yard where the gate is closed behind the mob. In this method large numbers of horses are usually captured at one time. In Victoria this method has not been used for some time as many of the old timers have indicated that horse numbers are too dispersed for this method to be very successful.

Trap yards have not been used in Victoria by the formal groups for some time. NPWS in NSW have engaged contractors that use this method along with roping to capture mobs. Trap yards are expensive to set up and although portable are cumbersome to move around and require numerous people to manage the process.

Roping requires a high degree of skill, on behalf of the rider. Riding skills and bush craft need to be at a high level if they are to be successful at capturing horses. Usually young horses are targeted for capture as they are more easily broken and worth more when sold. Older horses are usually sold to the knackers as they are worth very little commercially.

In the roping process targeted horses are chased up hill, where possible, usually for short distances. When they run out of wind they are lassoed. Per event, relatively low numbers of feral horses are removed by this method.

Brumby running is seen as a social event and part of the life style of the “high country” but is not the most efficient method of removing feral horses.
FOR
Brumby running has several pluses as a method of capturing feral horses.
- Individual horses or groups can be targeted for removal.
- Brumby running is highly mobile and low cost and can be undertaken by small groups in remote and difficult-to-access areas, with relatively very little equipment or outlay (other than public liability insurance).
- Brumby running is generally highly enjoyed by those who participate in it and they often do it for pleasure, rather than any potential monetary benefit.

AGAINST
- The main disadvantage with brumby running is that only small numbers of horses are removed per catching event.
- Roping is potentially a high risk activity for both horses (ridden and feral) and riders as much of the terrain is rocky and undulating and in some of the capture areas steep and heavily treed. It cannot be used in Barmah Forest due to tree debris.
- Feral horses are territorial but if continually chased may move to new areas, spreading the feral horse population.

ISSUES
Managing the feral horse population with brumby running has numerous problems associated with the activity including:

- OHS and JSA adherence
  OH&S requirements insist that the brumby running contractors provide a safe work place and have appropriate procedures in place. Monitoring adherence in the workplace is difficult.

- Changing patterns of work from roping to yarding
  Encouraging a transition to a combination of roping and yarding may require negotiation, as brumby runners prefer roping.

- Insurance cover
  Insurance cover for horse based activities is becoming more difficult to obtain and may restrict roping in the future

- Target areas and numbers
  Key target areas (eg the disjunct population on the Bogong High Plains) and target numbers to be removed must be negotiated with the brumby runners and adhered to.
Horse Population Monitoring in the Alps

Michelle Walter

Horse Population Monitoring in the Alps

Michelle Walter
Applied Ecology Research Group, University of Canberra

Current Address: NSW Agriculture, Orange Agricultural Institute
Forest Rd, ORANGE NSW 2800
Email: michelle.walter@agric.nsw.gov.au, Ph: (02) 6391 3834

Talk Overview

• Why monitor populations?
• Monitoring over a large area
  - aerial survey
• Monitoring over smaller areas
  - ground surveys
• Predicting the response of populations to control

Why monitor populations?

• Provides a quantification of the 'problem' and allows an estimation of the resources needed to manage it. E.g. K.I.
• To allow assessment of when to manage based on whether the population is too big or too small or changing in size.
• A way of comparing the success of different management programs
What is 'good' monitoring?

- Targeted to objective
- Repeatable
- Accurate and Precise
- Takes sources of error into account
- Quantifies error

Aerial survey for large areas

- Aerial survey is often the only feasible way to monitor populations of large animals over a large area, e.g. N.T.
- How many horses in the AAnp?
- Aerial survey of horses in the Alps in 2001 and repeated in 2003 post-fire
- Area = ~2800 km², C.V. = 30%
- Montague-Drake results for smaller area?

Aerial Survey of Horses in the Australian Alps NPs

- Preferred method- with helicopter using line transect methods for two observers combined (Walter & Hone 2003 Wildlife Society Bulletin)
- Group size estimation from ground surveys
- Estimates
  - 2003: 0.87 horses km⁻² (submitted to Wildlife Research)
Ground Surveys

- Mark-recapture surveys
- Line transect surveys
- Indices
  - Dung Counts
- Index-manipulation-index

Ground surveys 1999-2002
(Walter 2002)
- Using mark-recapture
- 3 areas of interest to land managers
- Estimate number and density in 3 different environments across Alps
- Demographic study
- Population growth rate
- Potential factors limiting population growth

Results from Ground Surveys 1999-2002

<table>
<thead>
<tr>
<th></th>
<th>Cowombat</th>
<th>Big Boggy</th>
<th>Currango</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avg. Density (horses/km²)</td>
<td>6.40</td>
<td>2.01</td>
<td>2.13</td>
</tr>
<tr>
<td>Rate of Increase/yr</td>
<td>1.03</td>
<td>1.07</td>
<td>1.09</td>
</tr>
<tr>
<td>(0.96-1.10)</td>
<td>(0.97-1.16)</td>
<td>(1.04-1.14)</td>
<td></td>
</tr>
</tbody>
</table>
Population Modelling

• Useful for estimating control effort required for a desired result
• Helpful when budgeting for control
• Logistic growth model

\[ N_t = N_0 + r_m N_0 \left(1 - \frac{N_0}{K}\right) - H \]

- \( N \): population size
- \( r_m \): intrinsic rate of increase
- \( K \): carrying capacity
- \( H \): harvest (or number of animals removed)

Rate of increase (\( r_m \))

<table>
<thead>
<tr>
<th>Species</th>
<th>Intrinsic rate of increase (( r_m ))</th>
<th>Population doubles every?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mice</td>
<td>3.41</td>
<td>2.4 months</td>
</tr>
<tr>
<td>Rabbits</td>
<td>2.06</td>
<td>4 months</td>
</tr>
<tr>
<td>Goats</td>
<td>0.43</td>
<td>1.6 years</td>
</tr>
<tr>
<td>Horses</td>
<td>0.20</td>
<td>3.5 years</td>
</tr>
<tr>
<td>Whales</td>
<td>0.05</td>
<td>13.8 years</td>
</tr>
</tbody>
</table>

ACT Example

\( H \): annual harvest (horses removed each year)
Assuming \( K \) (carrying capacity) = 1000
Immigration?
\( H \) = annual harvest (horses removed each year)

Assuming \( K \) (carrying capacity) = 4000

\( H \) = annual harvest (horses removed each year)

Assuming \( K \) (carrying capacity) = 2200

**Modelling and ‘Reality’**

- Models can be used as a tool to help manage horses
- Verification by on-ground monitoring is important
Horse Population Monitoring in Victoria

Cameron Miller

Developing a Feral Horse Monitoring Program: 
Alpine National Park, Victoria

Outline

• Background - PV supporting Frameworks
• Why Monitor ?
• Standard monitoring protocols
• Monitoring guidelines
• Key questions
• Next steps
ENVIRONMENT MANAGEMENT FRAMEWORK

HIGHEST GOAL

Values

Condition ofValues

Threatening Process

Risk Assessment

Risk Objectives

Identify & Select Management Strategies to Manage Risks

Report & Review

Implement Strategy(s)

ENVIRONMENTAL INDICATORS

CONDITION OF VALUES

Performance Measurement Framework

- Environmental measures (Outcomes)
  - Species
  - Communities
  - Ecosystems
- Threat measures (effectiveness)
  - Pest Animals
  - Marine pests
  - Pest Plants
- Activity measures (efficiency)
  - E.g. spray, dig, burn, shoot, plant, fence...

Why Monitor?

- Uncertainty - parks are managed in an environment with large knowledge gaps and uncertainty
  - How Does it function?
  - How well are we doing?
  - Where can we improve our management?
- Supporting the EMF
- Government Output Performance Measurement Framework

Healthy Parks
Healthy People
Monitoring is simply a Management tool

- Must be useful and informative
- We need clear management and monitoring objectives
  - Monitoring must be related to management objectives
- Monitoring needs to be systematic

Benefits

- Well designed monitoring programs will provide PV with:
  - A better understanding of threat responses
  - A better understanding of our effectiveness, and
  - A better understanding of system functioning
  - Better supported internal and external frameworks

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Fig. 1. Relation between pest density and the per capita cost of (- - -) control and the per capita cost of (- -) damage or impact. A target density can be identified at the point of intersection. After Brayshe (1993).
PV’s Draft Monitoring Protocols

What Protocols have been developed?

• **Over-abundant native animals**: Kangaroos and Koalas
• **Pest animals**: Cats, Rabbits, Pigs, Goats, Deer & Horses (Foxes as part of Fox AEM).
• **Pest plants**: Mapping and monitoring protocols for pest plants assessed collectively.

Standard Formats

- Species background, distributions and habitat requirements;
- Overview of estimation principles;
- Guidelines for devising a sampling strategy;
- A method selection decision key;
- Implementation instructions; and
- Cost estimates.
Support Tools

**PV’s Draft Monitoring Guide**

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**Key Steps in Developing a Monitoring Program**

1. Define management objectives.
2. Define monitoring objectives.
3. Define the rationale for monitoring.
4. Compile relevant data (biological and physical).
5. Define what type of monitoring you plan to implement.
6. Specify the element(s) to monitor.
7. Specify the area of interest - spatial and temporal.
8. Develop sampling design, procedures and frequency.
9. Determine appropriate levels of data management.
10. Evaluate resource requirements.
11. Define evaluation and reporting requirements.
12. Allocate responsibility for tasks.
Identifying key questions in Alpine NP - defining monitoring objectives

First steps

Key Questions in Alpine NP

1. Map distribution and estimate abundance
   • “What is the current distribution of horses in Alpine National Park?”

   • “Are there some areas where horse populations appear to be particularly high?”

   • “Where is it necessary to lower current horse populations?”

Key Questions in Alpine NP

2. Measuring management effectiveness
   • “Has there been a significant decline in the horse population in a specified management area?”

   • “Have we observed a change in horse sightings before and after horse removal in some areas where community groups can conduct surveys?”
3. Assessing environmental impacts:
   - "Are horse populations being maintained at levels low enough to maintain or improve values of high conservation importance in Alpine National Park?"

Defining management and monitoring objectives

*Issues for discussion:*

- Different management objectives will exist for different areas in the park - what are these?
- Should we consider excluding horses (both recreational and feral) from some areas?
- What methods are most useful for determining feral horses local distribution?
- What methods are most useful for determining feral horse impacts?
- How will post-fire recovery affect any horse monitoring program?
Next steps: ……a lot to get through

• Clarify management objectives in management units
• Develop clear mapping and monitoring objectives
• Use protocols and monitoring guide to develop robust, repeatable monitoring program in specified management units
• Prepare monitoring plan and circulate for peer review
• Define time lines for implementation