



The Australian Brumby Alliance

ABN : 90784718191

Submission to Kosciuszko National Park Draft Wild Horse Management Plan August 2016 *Att.1 – Managing Viable Brumby Populations*

We fully endorse the NPWS vision to acknowledge the cultural and social values of the Kosciuszko National Park Wild Horse population. However our confidence in NPWS has been severely shaken by draft plan's proposal to reduce the Heritage population to 600.

ABA submission [Att.1](#) explains, with referenced material, our recommendations to ensure Heritage Snowy Brumbies will continue for generations to see their living history and learn why ancestors of the Snowy Brumby were pivotal to early European settler's survival.

When the ABA questioned why NPWS chose an end population of 600, we were referred to Chapter 5 of [Genetic Diversity in Free-Ranging Horse and Burro Populations](#) that relate to the BLM Assateague National Seashore Reserve (US) and the *Kaimanawa* (NZ). It seems that NPWS used these two Wild Horse populations to support their aim of reducing KNP Wild Horse population by 90% down to 600. We now makes the following key observations:

1. Assateague Mustang populations have been kept near 275 because earlier studies indicated populations of 100's, rather than 1,000's would maintain genetically viable herd levels. For a few decades 100's seemed correct. Recent tests show noticeable inbreeding, and "multiple populations of thousands, not hundreds, of individuals are needed for long-term species viability" [Flather et al. 2011b]. Chapter 5 also explains that:

- Genetic studies provide essential data for the management of populations, including estimates of the levels and distribution of genetic diversity, assessments of ancestry, and the detection of genetically distinct populations.
- As early as the 1930s, it was established that inbreeding depression in small, isolated populations could lead to loss of fitness and increased risk of extinction (Wright, 1931).
- Studies by **E. Gus Cothran (University of Kentucky and Texas A&M University)** have been conducted since 2000 to monitor genetic diversity in US individual free-ranging Mustang herds, including:
 - Genetic drift—random change in allele frequencies between generations—is a strong force in small populations and can result in rapid loss of genetic diversity (*citing Frankham et al., 2010*).
 - Herds that remain isolated over the long term will inevitably lose genetic diversity inasmuch as maintaining or slightly increasing herd sizes will not offset the effects of genetic drift.
 - Isolation and small population size, in combination with the effects of genetic drift, may reduce genetic diversity to the point where herds suffer from the reduced fitness often associated with inbreeding. That would compromise the ability of herds to persist under changing environmental conditions.

Chapter 5 [Genetic Diversity in Free-Ranging Horse and Burro Populations](#) also explains that:

- Only a small fraction of the horse management areas (HMA) s or HMA complexes contain more than 1,000 horses, so no single HMA or complex could be considered to have a minimum viable population (MVP) size for the long term.
- Although the analyses suggests that horse populations on HMAs or HMA complexes that are larger than 1,000 do have a greater than 50-percent probability of survival for 100 years. Theoretical studies, in fact suggest that the figure could be closer to 5,000.
- Flather et al. (2011b) agreed with previous suggestions that multiple populations totalling thousands, rather than hundreds, of individuals will probably be necessary for long-term viability of species.
- Because the goal of translocation is to supplement the genetic diversity in a herd and reduce the probability of inbreeding, it is best to select animals that are unrelated to the target herd. Vucetich and Waite (2000) extended the analyses by modelling variation in population fluctuation and suggested that more than 20 immigrants per generation may be necessary.
- **However** link <http://www.wildhorsepreservation.org/genetic-diversity-and-viability> advises that rather than manipulate the genetics with outside introductions, we believe it is more prudent to allow populations to increase to genetically viable levels. This may require re-writing management plans, expanding herd area boundaries, or simply allowing levels to rise naturally over time within each area in jeopardy.

[Genetic Diversity in Free-Ranging Horse and Burro Populations](#)

Chapter 5 concludes with 2 key observations:

Genetic diversity is an important component of the health of free-ranging horses and burros on HMAs, in that it provides the raw material needed to respond to environ-mental changes. *In small, isolated herds, inbreeding is inevitable and will occur within only a few generations*

and

Critically, studies suggest that *thousands* of animals are needed for long-term viability and *maintenance of genetic diversity*.

2. Kaimanawa Heritage Wild Horse (NZ)

The Draft KNP plan explains that the Kaimanawa Heritage Wild Horse population in New Zealand is maintained at 300, with the support of the Department of Conservation (DoC), the Army Base they inhabit, and the Kaimanawa Heritage Horse (KHH) Assoc. who coordinate the bi-annual KHH muster and rehoming program.

The ABA has also had recent confirmation that:

- Both the Army base and the Department of Conservation (DoC) agree that the number of 500 horses in this land would have, and was a sustainable population to carry.
- The reason to reduce numbers from 500 to 300 was to lower muster costs and lower numbers to be removed, so that most of the horses removed could find new homes.

3. ITRG's recommendation to use a 2 tier approach:

The ABA supports the ITRG recommendation to use a 2 tier approach of:

- Short term (5 years) – removal of horses from *key zones* for the purpose of asset protection, and moving towards acceptable numbers across the park, and Long term (20 years) – strictly managed presence of horses in designated parts of the park, unacceptable environmental impacts minimised, and the need to remove large numbers of horses minimised.
- **We strongly support** the ITRG advice that impact assessments be carried out when the short term phase is reached, but note for the ABA, short term means a population level of 4,000. We recommend that impact studies should begin as soon as the new plan is finalised, in order to better inform future impact progression rates.
- **We strongly support** the ITRG advice that in the longer term research is needed on **impact level indicators**, noting the ABA assumes this research will involve **all** species considered to have an impact, and the ITRG advice to conduct **research** on the **ecology of horses in KNP**.
- **We support** the ITRG position that *“Surprisingly little is known about the ecology of horses in KNP, and very useful information would come from funding PhD projects on behavioural ecology, demography, movement ecology, habitat preference, and abundance”*.

The ABA notes that although the ITRG recommendation short and long term goals, they do not give final numbers. We assume NPWS populations proposal of 3,000 (short term), then 600 (long term) came later, presumable based on their research into the Assateague Mustang populations in America and the Kaimanawa Heritage Horse population in New Zealand.

However **in the ABA's considered opinion**, and with knowledge of the Assateague Mustang and the Kaimanawa Wild Horse programs, we **strongly recommend** a long term Wild Horse population in KNP needs to be closer to 4,000 (but not less than 3,000).

4. We urge NPWS to significantly increase the permanent population level

4.1 Long term survival of Brumby populations is dependent on the ability for Wild Horse populations to move freely throughout, say 70% of the area they now inhabit. This reduction would enable around 65% of KNP to be 'horse free' (adding around 20% to the current 'horse free' percentage. This proposal would enable the Snowy Brumby to:

- a) maximise their essential genetic mix,
- b) minimise the risk of inbreeding,
- c) maintain family groups and social interactions that defines their wildness,
- d) allow for population recovery insurance against, for example, a death rate of 64% as occurred in the 2003 KNP severe wild fire, and
- e) enable highly sensitive areas where horses graze to become 'horse free'.

4.2 (Dawson:2002) stated “the number of Wild Horses across the NSW area of Kosciuszko national park could be kept at 3,000”.

4.3 The final KNP WHMP sustainable population level for the Snowy Brumby needs to be consistent with more recent genetic Wild Horse populations studies that now recommend “multiple populations of *thousands*, not hundreds, of individuals are needed for long-term species viability”[Flather et al. 2011b].

4.4 We support sustainable Brumby population in healthy environments. In determining an “*acceptable level*” damage caused by **all species** per area in addition to natural elements e.g. severe wild fires, wind, frost, climate change etc. must be scientifically identified through appropriate studies in order for viable management population levels to be based on facts.

Davis et al. 2011 argue that it is “impractical to try to restore ecosystems to some ‘rightful’ historical state ... it is time for conservationists to focus much more on the functions of species, and much less on where they originated”

4.5 We strongly agree that the heritage value of Brumbies must be recognised within the park. However in order to ensure the Heritage Snowy Brumby’s survival we are seriously concerned about the way NPWS will determine “acceptable” wild horse populations, and

4.6 We reject a final Wild Horse population level of 600 [400-800] because in our opinion, based information provided in our submission, a population of 600 will after a few decades lose genetic viability, become inbreed, followed by welfare issues, then *extinction*.

Having 3-4 separate populations of around 1,000 is consistent with current research that advises; populations of 1,000’s, not 100’s and provide “translocation” opportunities that were discussed at the Friday 5th August 2016 (Tumut NPWS) briefing.

When identifying areas where Heritage Snowy Brumbies will continue living in (excluding extra sensitive alpine areas) consideration should be given to their origins. My geography of KNP is limited, so Ted Taylor from Norther KNP has provided [see below] knowledgeable background to the origins of various Snowy Brumby breed types, including the areas of:

- Kiandra
- Yarrangobilly Caves.
- Long Plain/Currango
- Peppercorn, Broken Cart and Brindabella, and
- Coolamine

Genetic drift—random change in allele frequencies between generations—is a strong force in small populations and can result in rapid loss of genetic diversity (Frankham et al., 2010). In small, isolated populations, inbreeding is inevitable and occurs within only a few generations.

Ted Taylor provided us with valuable insights into settler origins of the Snowy Brumby

Short history of High Plains Wild Horses from Kiandra to Peppercorn

“I now describe, for those not privileged to see KNP when leased and grazed by tens of thousands of sheep and cattle for over one 100 yrs. It was a very beautiful healthy landscape; the broad-toothed rat, corroboree frog, fish and wild flowers were in abundance. Weeds and feral animals were controlled by the lessees and were practically non-existent.

The generation that lived to experience the High Country mourn the degradation following the closure of the snow leases but photos will testify to the open plains and woodlands devoid of woody scrub, for example:-



Photo-1 Ted Taylor in 1953



Photo-2 same location in 2005

Photo-1: Ted Taylor open plain of Currango (1953) and his Peppercorn Brumby.

Photo-2: 2005 Exactly the same spot as above, Currango Plain.

Gordon Day explains “Brownlee from **Yarrangobilly** Village (original settler 1880) purchased a grey thoroughbred stallion that he ran with mares at Pidgeon Square. Gordon reports that many grey horses used to run the area that were offspring of that stallion. Franklins of Brindabella brought mares over and joined them with this stallion plus horses were let go to breed up. Apparently there was a bit of friction between Walter Hoad and the Franklins about who owned the horses - but that’s another story.

The grey horses in the **Kiandra** area are descendants of this breed and owned by George Day; he ran fifteen mares and one well-bred Arab stallion on a lease in the Goandara area. The Days returned each year to collect yearlings until leases closed and fences fell down. George’s son Gordon said “we used to go up to Witzes area and run the mares and yearling into the holding paddock around Witzes and take out what yearlings we wanted and let the mares go, this became very difficult when the fences fell down and it went from rounding up the horse to brumby running!”

The red roans running there at the same time belonged to the Dunn family of **Yarrangobilly Caves**. This was in the late fifties and sixties. The Snow Leases in the Kiandra area began closing in the early sixties, fences started to deteriorate allowing the horses to spread.

Horses on the **Long Plain/Currango** area came from the **Broken Cart, Peppercorn** area, the most distinct being a chestnut with a creamy mane and tail along with brown, black and bay horses. These horses ran in the Peppercorn, Broken Cart and Brindabella in the East and Emu Flat in the North/West from the early gold mining and grazing days, since about 1839 when Terrence Murray abandoned his tired horses at Coolamine. (read Murray of Yarralumbla).

Driving from Rules Point to Currango recently, we were disappointed to see so many horses in one area, enticed by salt in the ground near trap yards. These horses would normally have been in small mobs scattered throughout thousands of hectares of the high country. All animals love salt so wallabies and roos will also dig for residual salt for a long time.

Most visitors feel it is an exhilarating experience to see the Brumbies and photograph them. Another advantage of having grazing animals is keeping the fire fuel down, because there is nothing else to replace them that would make a difference and no burning the plain yearly as the lessees and the Aborigines did before Europeans arrived”.

Ted Taylor 5/1/16 Tumut - Edited 27/7/16

“The agreed heritage value of the horses also needs to be appropriately acknowledged.” [ITRG report p28]

P20-ITRG report states “Where wild horses are removed from KNP for potential domestication, the assessment indicates that mustering (small groups) and passive trapping offer the least animal welfare (corrected from least humaneness) impact of the live capture methods assessed.”

ABA response – we agree with this statement.

P24-ITRG report offers three practical ways to guide the question *what is an acceptable density* (of horses in KNP):

1. “A strategy of selective horse control is based on the premise that there is a population density below which the horses' undesirable *effects are acceptable*, i.e. a *threshold level*.” **The ABA agrees with this statement in principle, but is concerned that classifying acceptable is subjective exercise, influenced core personal values.**
2. “A threshold population density is in turn linked to a *threshold level of effect*”. “Threshold levels of effects would be suitable performance standards for control operations, especially if they could be monitored using indicator species, vegetation stature or composition”, **The ABA agrees with this statement in principle, but indicators must be related to all environmental pressures in the control area, such as; extreme weather, humans and other species i.e. kangaroos, wallabies, pigs, deer, goats, rabbits etc.**
3. “For example, monitoring of vulnerable plant species is based on the assumption that, providing these key indicators are not being *visibly or measurably damaged by horses*, it is likely that the ecosystem as a whole will retain its integrity.” **The ABA would only accept on condition all factors influencing the indicator species and control areas have been quantified, such as weather, humans and other species such as kangaroos, wallabies, pigs, deer, goats, rabbits, wild dogs etc.**

Until the proportion of impacts resulting from all species in a given area, just removing horses cannot lower impact and money is wasted as other species impact the area, in fact impacts may increase as other species move in to fill the grazing vacuum left by horses.

ABA 19-August-2016

Removal options mentioned in the draft KNP WHMP

Trapping – We **support** passive trapping as the preferred option where a demonstrated need to lower Brumby numbers to a specified level, is identified by research. We note that NPWS trap skills have significantly improved to the extent NPWS can now remove 670 in one year.

Fertility Control - We **support** fertility control, noting: PZP has been used for 30 years (US) and GonaCon is been trialled in England (Dartmoor). We urge KNP trials to start early to:

- Identify best practice dart gun application, and
- Identify a suitable, genetically robust model identifying which mares to dart using short term (3-4 years) application such as PZP and GonaCon. Use of non-reversible fertility control should be used with *extreme caution*, and never applied until a mare has had sufficient foals to contribute to the genetic pool of each herd.

Some scholars across disciplines are re-examining how we understand introduced species, the language we use to discuss them (and why that matters), and how to manage them.

(Rotherham and Lambert 2011)

Ground shooting – We **reject** the ground shooting of unrestrained Brumbies because of the inability to follow up an escaping wounded horse and inability to gain a single kill head shot. We also note that HOR001 ground shooting COP states:

- Ground shooting is best suited to accessible and relatively flat areas where there are low numbers of problem horses, and
- Ground shooting as a means of population control is not suitable in inaccessible, wooded or rough terrain where sighting of target animals and accurate shooting is difficult, or when wounded animals cannot easily be followed up and killed. [HOR001]

“Although there were two experienced marksmen working together, only 2 of the (4) horses were shot initially. The other 2 escaped into surrounding timbered country.”
[Namadgi National Park Feral Horse Management Plan (2007)]

Aerial shooting (ITRG) Banned in NSW – We **reject** aerial shooting, because:

- It fails to meet the RSPCA definition of humane killing as *when an animal is either killed instantly or instantaneously rendered insensible to pain until death supervenes.*
- It is not possible to guarantee a kill first shot every time,
- The high risk of horses being injured running over uneven or steep terrain, and
- It is impossible to ensure ground back-up can promptly kill each wounded horse.

Introduced, and especially, invasive species “will have increasingly important roles and functions in future landscapes” (Rotherham and Lambert 2011)

This ABA Att-1 Managing Viable Brumby Populations is a key part of our total submission to the Draft Kosciuszko National Park – Wild Horse Management Plan. Please also refer to the Main ABA submission, Att-2 Impact Perspectives and Att-3 Straight Talk.

Please feel free to contact the ABA with any queries about our submission to the draft plan by contacting Jill Pickering via (03) 9428-4709 or emailing pickjill@hotmail.com

Yours sincerely



Australian Brumby Alliance Inc. 19-August-2016

Att-1 references are listed at the end of the main ABA submission.

ABA Main Submission

- **Att.1 Managing Viable Brumby Populations**
- Att.2 Impacts in perspective
- Att.3 Straight Talk Consultation