The Australian Brumby Alliance

ABN : 90784718191

Submission to Kosciuszko National Park Draft Wild Horse Management Plan *Submission* - 19th August 2016

The Australian Brumby Alliance (ABA) Inc. was formed in April 2008. Its mission is to act as a National Body for the Recognition, Management, Preservation and Welfare of Australian Wild Horses (Brumbies). ABA Member groups project a strong advocacy focus and have developed a solid understanding of the skills and complexities required to collect Brumbies trapped by park removal programs, then gentle and rehome them.

Thank you for the opportunity to provide feedback on the Kosciuszko National Park Draft Wild Horse Management Plan. The Australian Brumby Alliance (ABA) acknowledges that the National Parks and Wild Life Service (NPWS) NSW have invested considerable time and resources over two years to provide a broad range of documents to support the draft plan.

The ABA fully endorses the Context review finding "*that the wild horse population is an attribute associated with the cultural heritage significance of KNP in relation to five criteria"*. However the dramatic 90% drop to 600 does not reflect the Brumby Heritage status, since a level of 600 Heritage Brumbies will lead to inbreeding and extinction.

Genetic Diversity in Free-Ranging Horse/Burro Populations [http://www.nap.edu/read/13511/chapter/7]
The goal of genetic management is to maintain as much as possible of the standing genetic diversity of a population and thereby provide the raw material needed to respond to environmental changes. Although there is no magic number above which a population can be considered forever viable, studies suggest that thousands of animals will be needed for long-term viability and maintenance of genetic diversity.

Removing Brumbies near main roads makes sense, but proposing to remove all Brumbies in areas accessible by slow off road tracks, such as Snowy Plains, is at odds with agreeing they are a tourist attraction. Especially damaging is the plan's aim to remove the famous Kiandra Greys, loved by locals and tourists who travel from far away to see them.

The ABA submission is about ensuring that a robust Heritage Snowy Brumby population will continue to be seen by future generations as *living history* and understand why early settlers relied on ancestors of the Snowy Brumby to survive. In doing so, the ABA also accepts that too many of *any* species, including humans, will cause negative environmental impacts.

We support management of **sustainable** Wild Horse populations, and that *moderate* Wild Horse grazing levels do have positive impacts. Our view is supported by Nimmo & Miller's 2007's review *[Ref-?]* which found that avian richness and diversity was **higher** in areas subject to **moderate grazing** than in areas that excluded horses. And that **intense** grazing by horses caused increased predation on bird eggs in grasslands and reduced avian richness and diversity. First we must define *moderate (horse) grazing* in relation to *all* impact **species**.

Key to the Complete ABA Submission to NPWS draft plan

Key: Abreviations

NPWS: National Parks and Wild Life NSW
OEH: Office of environment and Heritage
KNP: Kosciuszko National Park
WHMP: Wild Horse Management Plan *(draft 1-March 2016)*
ITRG: Independent technical Reference Group
BLM: Bureau of Land Management (manages American Mustangs)
ABA: Australian Brumby Alliance Inc.

KNP WHMP Page numbers are used to relate ABA feedback (often in red font), [such as, WHMP p6 relates to the draft Wild Horse management Plan page 6].

ABA Submission Guiding Principles;

- Provide recommendations to the draft plan that are consistent with NPWS's vision to acknowledge *the cultural and social values of the Kosciuszko National Park wild horse population*, that will ensure the long term survival of Kosciuszko National Park's Heritage Snowy Brumby,
- Encourage Wild Horse Management be guided by peer-reviewed studies i.e. assessing both positive and negative aspects of how Brumbies interact with their ecology, while
    - Recognising traditional negative, often emotive and complex, views on introduced species are increasingly being questioned by many scholars, for example Crystal Fortwangler's book "Untangling Introduced & Invasive Animals 2013" explains:
        - Introduced, and especially, invasive species invasive species "will have increasingly important roles and functions in future landscapes", and
        - 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. *[Crystal Fortwangler 2013]*

1. ABA - Positive Aspects of the Draft Plan

The **comprehensive** assessment of cultural heritage values documented by "*Context"*. The ABA fully endorses the Context review finding of the heritage assessment "*found that the wild horse population is an attribute associated with the cultural heritage significance of KNP in relation to five criteria".*

The **vision** of NPWS to acknowledge the cultural and social values of the Kosciuszko National Park wild horse population that is shared by the ITRG p28-ITRG "The agreed heritage value of the horses also needs to be appropriately acknowledged."

The **acknowledgement** by NPWS that a Wild Horse presence results in a reduction of fire severity in Forest, sub-alpine and montane areas and an increase in species diversity in Sub-alpine and montane environments.

The **pragmatic** observation made by Context [*page-vii*] that "Conflicts between values are not uncommon in the cultural heritage domain" and that resolving such differences require efforts by all parties to find solutions that offer mutual gains.

The **decision** to establish a Kosciuszko National Park Wild Horse Management Program Reference Group [*page28*] with a specific focus on wild horse management issues within the park that will include a wide range of key stakeholders, including Wild Horse rehoming and rescue organisations and Wild Horse advocacy groups.

The **decision** to continue the use of passive trapping as a management option.

The long-term aim to **minimise** the need for lethal control makes good sense, however the draft plan proposal to reduce Brumby numbers to 600 [400-800] will leave a critically low population that is vulnerable to wildfires (2003 fires killed 64% of the Brumby population), leading to low genetic variety, inbreeding other significant welfare issues.

The ABA fully **endorses** NPWS recognition of the heritage value of Brumbies must be recognised within the park. However we are seriously concerned regarding the process used to determine what is an "acceptable" wild horse population level.

Subject to the ABA supporting an agreed position with OEH on the intent of words such as, *three broad regions, acceptable ecological impact levels,* and areas *deemed particularly sensitive,* the ABA **tentatively supports** the recommendations of the Technical Reference Group (ITRG) to the Office of Environment and Heritage (OEH), that:

- **Pvi-ITRG**: OEH consider implementing management zones within the three broad regions of the park, and within these zones, horses may be excluded or managed to achieve planned acceptable ecological impact levels. 'Acceptable ecological impact' would be determined through scientific consideration, and would include zero impact in areas of KNP deemed particularly sensitive.

- **Pvi- ITRG**: "OEH consider establishing a research hub to help focus horse research efforts", because the ITRG concludes that there are significant knowledge gaps in our understanding of horses in KNP.

- **P25-ITRG** report states "In common with many stakeholders, the ITRG would like to see fertility control methods researched and improved in efficacy."

2. ABA - Negative Aspects of the Draft Plan

The ABA is extremely concerned that NPWS continue to base their views on Wild Horse management using non-peer reviewed, unpublished studies. In our view, while NPWS rely on less robust/scientifically rigorous data, recommendations made to the Minister will not stand up to rigorous scrutiny and may potentially mislead the Minister. *Ultimately the Minister for NPWS is accountable to parliament*. Ministers are responsibility for ensuring their decisions follow due process and do not leave them vulnerable to any potential to mislead parliament.

For example, Beavis:2002 *[Ref-2]* found that:

- Australian studies are extremely limited with significant constraints for wider application due to poor experimental design, site specific conditions or inadequate analysis of results;
- Short term data cannot provide an understanding of the relationship between the degree of impact and the intensity of use; and
- The influence of prior events which define vegetation cover and surface soil condition (such as fire and/or extreme climate events) may not be integrated into the study; and
- Cites Sun and Walsh (1998) that most studies in Australia "have used field survey techniques which provide rapid results with relatively low costs"; and adds that
- However, limitations to this approach include, "snapshot perspectives" do not provide an understanding of seasonal or annual variations in use or environmental factors.

> 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".
> *Fortwangler 2013 [Ref-1]*

NPWS state that only *some* people visit the park to see Wild Horses vs *many other* people visit "expecting a pristine and native landscape without the intrusion of what they consider to be feral animals" *[NPWS questions/answers 2nd replies to KNP WHMP queries]*
ABA response – What data backs the view that few people visit to see horses, while many others visit to see pristine landscape? In our view, many people visit the park for its beauty and other attractions (hiking, skiing, caving etc.) and their visit is enhanced by seeing wild Brumbies, others come particularly to see wild horses, while some wish to visit the region to see areas without feral animals.

> This is a well-known problem that standard textbooks warn against: it's easy to conclude that an otherwise rather dull wetland has been completely taken over if you look at it when loosestrife is in flower (especially if this is what you *expect* to find, even if a more careful examination would reveal no such thing. *Story & science of invasive species K Thompson [Ref-3]*

The ABA negative aspects of the draft plan are explained under the sub-titles:

> *Bill Gammage - How Aborigines made Australia [Ref-4]*
> What we think of as virgin bush in a national park is nothing of the kind."

2.1 Inaccurate Draft Plan Statements

WHMP **p11**- Mares are able to foal at one to two years of age and usually raise one foal every two years (Dobbie & Berman 1992; Wagoner 1977)
ABA response - This statement defies logic. In order to foal at 1-2yrs, a new born filly has to reach sexual maturity at 2 months old. Reference given is rejected by Dobbie & Berman.

WHMP **p11** – The use of exclosure plots as evidence to back claims of grazing damage by horses.
ABA response – Excluding all grazers cannot isolate horse grazing (ITRG reports below), but does prove that no grazing results in bio-**mass**, while grazed areas result in bio-**diversity.**

- ITRG **p9** report "While studies on herbivory are widespread, there is less information specifically on the effects of horses. This is because controlled experimental studies are rare, and most rely on a correlational approach and are often *complicated by the presence of other herbivores"*.
- ITRG **p11**- " Exclosure plots are often positioned to record impacts in *very specific habitat types*, which are *not representative of damage across the range*, and exclosure plots typically exclude other large grazers like deer.

> Australian symposium (2014) acknowledged that "*there is no original, natural or pristine state remaining in the alpine ecosystems. Rather than focus on individual species, a broader perspective encompassing longer term goals and emergent properties of the system is needed. In addition, care must be taken not to exacerbate problems associated with invasive pests and pathogens*". [https://www.anbg.gov.au/gardens/living/seedbank/2014-alpine-symposium-report.pdf]

WHMP **p13** - Australian alpine plants and animals did not evolve in association with hoofed animals or pastoral activity (Costin et al. 2000). Horses are large, heavy animals and only a small part of each horse comes into contact with the ground, resulting in compaction of the ground and trampling of vegetation.
ABA response – Australian soils did evolve with heavy, hoofed, herbivores (megafauna) i.e.

- Giant short-faced kangaroo with a hoof-like toe that cut into soil and gave protection to growing native seedlings.
- Diprotodon optatum, Zygomaturus trilobus and Palorchestes azael weighing between 1,000-2,000 kgs and 9 species weighing 100-1,000 kgs. By comparison, Brumbies weigh around 550 Kgs. [Ref - http://en.wikipedia.org/wiki/Australian_megafauna].

Claims that alpine plants and animals did not evolve with pastoral activity *ignore* emerging awareness that Aboriginals made Australia the "Biggest estate on earth". Bill Gammage in 2012, was awarded the Prime Minister's *Prize for Australian History* for his research on the understanding of how humans lived in Australia when Europeans arrived.

> Bill Gammage - How Aborigines made Australia *[Ref-4]*
> "*The still common assumption is that Aboriginal Australians in 1788 were simple hunter-gatherers*"
> "*Aboriginal people managed the land in a far more systematic and scientific fashion that we have ever realised*"
> "*Across Australia, early Europeans commented again and again that the land looked like a park with extensive grassy patches and pathways, open woodlands and abundant wildlife, it evoked a country estate in England*"
> "*Once Aboriginal people were no longer able to tend to their country, it became overgrown and vulnerable to the hugely damaging bushfires we now experience*".

WHMP **P16-** Bishwokarma 2014 concluded that wild horses are now the major contributor to suppressing the recovery of (White Box) woodlands from historical degradation.
ABA response – Bishwokarma's preliminary investigation into the impact of horses on KNP White Cypress Pine-White Box Woodlands does not use horse specific exclusion areas.

> "*Enclosure plots that exclude all grazing herbivores are likely to exaggerate the impacts of horses*". *(Linklater et al. 2002)*

WHMP **P16** - A study on Broad-Toothed Rats conducted in Long Plain over a 10-year period showed that in sites where there were no horses, the number of rats did not change. However, all sites where horses were present were compromised by two actions: grazing of the tussocks and trampling of the inter-tussock spaces (*K Green 2015, NPWS, pers. comm*.).
ABA response –

- The study fails to state if horse occupied areas also contained Broad-Tooth rats,
- Does not compare *rat numbers* in horse absent areas with horse present areas,
- Fails to describe any changes in rat numbers between horse/horse absent areas,
- Fails to consider other options such as impacts from pigs, weather, tourists, and
- No link to how tussock grazing/inter-tussock trampling relates to the Broad-Tooth rat?

WHMP **p17** - Figure 4 [See photo ABA **Att.2**] states: *Examples of track formation and trampling of vegetation caused by horses in the Rams Head area of Kosciuszko National Park*.
ABA response - This undated photo was first used on p5 of the NPWS KNP management plan (2003) then again on p8 of the NPWS KNP management plan (2008);

- Using the same photo for over 13 years cannot show change or current status.
- Where is evidence of horse prints, grazing or dung - How do we know the track was not started by visitors walking to Mt Kosciuszko's summit via Rams Head?
- Or stockmen searching for cattle well before 2003?
- Once a track starts, humans and other species will use the way of least resistance.

> See magnificent recent photos of Rams Head taken in 2015 [ABA KNP submission appendix 2]

2.2 Wild Horse data taken "out-of-context"

WHMP p**4** - Impacts on natural values - Moreover, numbers have not been reduced to a level where there are **no longer impacts** on the park's natural and cultural values or visitor safety.
ABA response – Reducing to a level of **no impacts**, infers that horses are responsible **for all impacts** in the park. Humans, animal and weather extremes also contribute to impacts.

- DPI Victoria reported in February 2003 that major flooding, affected water quality and increased the risk of long-term erosion*; [Ref-5]*
- High and fast flows (from the Snowy Hydro Scheme) have caused destabilisation and erosion of river banks, scouring and removal of vegetation; *[Ref-6],* and
- Thousands of people flocked to mine sites in Alpine areas, including Kiandra and Walhalla particularly after 350 kms of tracks were built to link the goldfields. *[Ref-7]*

Furthermore, NPWS plan to reduce to a level of *no* impacts is **not** consistent with the ITRG recommendations and many other sections of the draft plan to "lower or minimise" impacts.

> "Very tall people with red hair, big tattoos and conspicuous facial scars rarely have successful careers as bank robbers, and loosestrife has a similar problem: it's just too conspicuous for its own good. *Story & science of invasive species by K. Thompson [Ref-3]*

WHMP p**7** - reports the ITRG advising "returning the numbers to *acceptable levels*" & the ITRG conclude that "management is required to hold the population density **at** or below the current level".
ABA response - We support sustainable Brumby populations in healthy park environments. However before determining what horse population level/density is acceptable, it is essential to quantify the percentage of damage horses cause compared with other causes, such as:

- Natural elements such as, severe wild fires, wind, frost, climate change;
- Other species, such as Pigs, Deer, Goats, Rabbits, Kangaroos, wallabies; and
- Humans such as 4WDs, Hikers, Cycles, Mining, Snowy Hydro Scheme, Resorts.

The invasion and success of exotic and introduced species in rivers is facilitated by the alteration of (Snowy Hydro Scheme) flow regimes *[Ref-8]*
Humans introduced exotic weeds, (Scotch/Spanish Broom, Lupins, willows to KNP); *[Ref -9]*
Seeds are primarily dispersed by gravity, wind, surface water movement, soil erosion, birds, ants, dung beetles and rodents; *[Ref-10]*
Clothing on 33,000 annual hikers visiting KNP significantly spread seeds. *[Ref-11]*

Why has the KNP draft not compared the damage claimed to be from Brumbies with impact levels from factors present such as natural elements, other species and humans. Until NPWS can base acceptable Brumby levels on quantitative data through robust scientific studies of all impacts, they will not be seen to be providing scientific, transparent and quantitative data.

Unfortunately, modern research often begins at the fourth step by testing a pre-conceived hypothesis or, just as bad, bypasses the scientific method and uses data collection and statistical gymnastics to search for insights into perceived problems. This invariably gets people into trouble because they focus on association and neglect logical cause. *[Firestick Ecology Vic Jurskis* Ref-12]

WHMP p**13-** Australian alpine soils are very sensitive to compaction and easily eroded.
ABA response – Why not compare compaction with other impacts in KNP, such as 4WDs, mountain bikes motor bikes, hikers ski resorts. (Beavis:2002 **Ref-2**) concluded that "when considering potential **impacts imposed by people and horses** on the basis of dynamic pressures, there is a **reasonable level of comparability"** after comparing "dynamic, vertical forces imposed by the human foot during walking indicate two maxima (8 000 – 9 000 Newtons)" with "vertical forces imposed by a horse's hoof during movement of 4 000 to ~ 8 000 Newtons.

"Numerous degraded sites are distributed across KNP where vegetation loss or active erosion occurs. These sites are associated with fire trails, transmission lines and areas of intense human activity, or are relicts of historic fire, grazing and construction." *[ITRG report p12]*

WHMP p**20-T**he draft plan lists 12 disease/health issues of risk in Wild Horse populations.
ABA response – The Emergency Animal Responses [EARs] lists (11) risks for horses, (11) risks for Goats, Deer and Rodents (which includes the Broad Tooth Rat)**.** *[Ref-13]*

- The highest disease/health risk identified on the EAR chart is **15** risks for **Pigs**.
- Of more significance the AUSVETPLAN wild animal manual overall assessment is that "*Australia is fortunate that most native wildlife species do not appear to be at significant risk from many of the EADs of concern*". *[Ref-14]*

2.3 Draft Plan Inconsistencies

Two replies provided by NPWS in their 2nd Q&A circulation are commented on below;

A) - In the past five years the NPWS pest control program for Kosciuszko and the Southern Ranges region has resulted in 1844 pigs, 934 deer, 846 goats, 251 cats, 2037 foxes and 1377 wild dogs being removed from reserves across the region (through trapping and shooting programs). NPWS has also laid 43,736 wild dog bait, 6734 foxes bait, 667kg of pig bait, 3852kg of rabbit bait, and ripped or fumigated 2092 rabbit warrens across the region.

ABA response – This shows NPWS has removed a yearly average over 5 years of:

369 –	Pigs	each year [vs culling 3,000 Brumbies over 5 yrs (600/year]
186 –	Deer	each year
169 –	Goats	each year
51 –	Cats	each year
407 –	Foxes	each year
275 –	Wild Dogs	each year
418 –	Rabbit Warrens	each year
10,094	Wild Dogs/fox baites	each year
4519 kg	Pigs/rabbits baites	each year

Pig have multiple births each year.
while
Horses have single births and often miss foaling every 3rd yr.

How does the ecology cope with 4519 Kgs of bait plus 4519 bates laid annually?

B) - Small wild horse populations are successfully retained in other international conservation reserve situations, such *as Kaimanawa (300 horses*) in NZ & *Assateague Island (275 horses)* in the USA where wild populations in their 100's are retained. Herd health is monitored and genetics issues addressed by translocation/assisted immigration of new blood stock. The KNP draft plan proposes that 3 of 4 current separate geographic areas be retained at low wild horse population densities, reducing natural disaster (fire) impacts.
ABA response – See recent Mustang research Genetic Diversity in Free-Ranging Horse and Burro Populations chapter 5 which shows the need for populations in 1,000's not 100's.

WHMP **p6** - **Alpine flora** is extremely diverse and many species are only found in the park, and **P14-** environmental impacts of horses have been of concern for decades (Robertson 2015)
ABA response – This statement shows that the alpine flora has flourished alongside grazing. If, in fact, Wild Horse grazing impacts was as problematic as NPWS claim they have been for decades, then instead of alpine flora being extremely diverse, it would be almost non-existent.

WHMP **p14-** Some of the supposed benefits of horses, such as reduction in fire severity, do not seem to be supported by studies of cattle grazing in the Alps (Williams 2006; Williamson 2014).
ABA response- This is not consistent with the full ITRG report which states on p10 that:

- Horses **do** reduce fire severity in Forest, sub-alpine, montane, semi-arid areas (*ITRG report citing Silvers 1993, Davies 2015*).
- William's report is scant on cattle grazing densities or numbers in the lead to the 2003 fires, especially since large-scale grazing had nearly ceased by late 1950s **[Hope Ref-15]**
- Without sustained grazing on land that had become accustomed to grazing, the fuel loads would have grown unchecked - studies NPWS use to claim grazing does not reduce fire risk, should factor in all variables and quantitate data etc.

WHMP **p16-** "Wild horses have almost completely removed a former sphagnum shrub bog at Dunns Creek (Hope, et.al. 2012 *Ref-15*)" and "Grazing and trampling near wetlands and bogs tends to result in decreased sphagnum & sedges, lateral erosion & increased probability of wetland draining". ABA response - horses and wetland bogs have shown they can survive together.

"Invasion of the fen at Sally Creek by a Sphagnum bog is all the more remarkable because *the area has a long history of grazing and currently supports large numbers of feral horses*, which often graze in the fens and leave a dense network of tracks"; (also ***Hope*** *2012 Ref-15*).

WHMP **p20**- "Horses, as a large and highly mobile animal**, pose** a significant risk to (KNP) motorists" and are ranked by NPWS "moderate to high" with due to 26 accidents since 2003. **ABA response** – 26 reported incidents since 2003 is an average of 2/year). How can NPWS use 2 non-fatal incidents/year as justification to remove all horses near KNP roads? Just compare the proportion of all animal incidents that occurred in the same period on the Centre for Road Safety website, and still NPWS wonder why their concern has not been supported.

The centre for road safety website states that between 2009 and 2013 there were **167** road incidents in the *Cooma-Monaro* region, **112** in the *Tumbarumba* region, **213** in the *Tumut* region and **213** in the *Snow River* region. **Therefore 2** horse incidents per year when compared to the same area represents 1.4% of **all** road (non-fatal) incidents.

Advice is available on websites to help drivers take steps to help avoid animals, for example;

- https://www.allianz.com.au/car-insurance/news/wildlife-on-our-roads Most animals hit are kangaroos and wallabies, and steps to take to help avoid hitting an animal.
- http://www.theage.com.au/victoria/the-animal-that-causes-the-most-car-crashes-in-victoria-20160412-go46rw.html The best advice to avoid hitting an animal on the road is to go it slow, keep a safe distance from other cars and be extra wary around dawn and dusk, when local fauna is most active.

Considering NPWS express significantly concerned at horse incidents they have received, it may help if NPWS suggest some safety ideas on their website, and to mitigate the risk, advise visitors not to approach or feed the horses. (*Brumby advocates have suggested for some time*)

WHMP **p20** "*Discussions were held in regard to adjusting the speed limits to mitigate the risk of vehicle interactions with wild horses, however this was not supported by the Traffic Committee*" **ABA response** – We are not surprised at the traffic committee's response to NPWS.

WHMP **p20 -** In recent years, NPWS has received an increasing number of complaints from a park users who have felt that their safety has been threatened by the presence of Wild Horses. **ABA response** –The ABA and other horse groups have advised NPWS to provide education material to visitors about, for example, not feeding wild animals, keeping their distance from all wild park animals. Why having expressed their concerns that park users feel threatened by a horse presence, have NPWS not addressed these concerns by taking simple precautions such as advising visitors how to more safely address such concerns.

WHMP **p23**- Wild horse population will be subject to natural processes such as drought, fire and snow events. Populations lost through natural processes will **not** be re-established. **ABA response –** Contrary to NPWS vision to keep a heritage Brumbies since a population of 600 is at risk from wild fires, inbreeding then the loss of early settler Snowy Brumby stock.

WHMP **p31-** Action19. 'Encourage, where possible, proposals for establishing local wild horse rehoming or domestication programs and appropriate facilities'.
ABA response – Rather than e*ncourage* we recommend NPWS to offer *seed funding* and promote, sustainable Brumby rehoming by groups or individuals skilled in ways to introduce a previously wild, independent, sentient creature to valued life in a domestic environment.

ITRG **p32-** "Rangers could also deliver fertility control vaccines on an opportunistic basis"
ABA response – Opportunistic darting is not consistent with a science driven fertility control program. Before darting begins, the program coordinator has to develop a model framework to work within, for example;

- Identify the population goal to work towards,
- Maximise mob/populations genetic survival,
- Know which mobs to use fertility control on,
- Calculate the percentage of mares per mob to dart, and
- Have appropriate record keeping and monitoring updates to guide progress.

ABA note: Dart guns are highly specialised and require the users to be trained and licenced.

WHMP **p29** draft plan Carcass disposal.
ABA response - We have significant concerns that the draft plan intends to leave such a volume of horse carcases in the park, this is a health issue and will provide a surge in other meat eating animals that will breed up with such a lavish food supply, then once the supply has gone, focus on other smaller animals, causing a significant drop in many native animals.

3. ABA Research feedback

3.1 - The ABA is is not aware of any formal University partnership for long term monitoring of: erosion trends, population assessments, habitat use, grazing trials, weed transmission, impacts on threatened species or environmental impact monitoring encouraged in the **2008** KNP Wild Horse Management Plan. The ABA would support such formal projects, provided;

- Impacts from all species were quantified and proportional damage levels compared,
- Studies are peer reviewed and published.

3.2 - The ABA supports the ITRG's-p12 conclusion "Impact studies such as this should be carried out at intervals into the future as a way of assessing management performance against the next Wild Horse Management Plan." The ABA would support such studies, provided they also quantify and proportion impacts across all species, including humans, weather etc.

3.3 - The ABA conditionally supports the ITRG's p14 proposal "*As the management plan is implemented, a key task will be to agree on a selection of essential indicators and a process for monitoring them.*" However, it is essential that NPWS incorporate views from both those against, or for, a horse presence to build commitment to long term study results.

3.4 - The ABA tentatively supports the ITRG-p25 list proposed to emphasise "impact-based thresholds as the way forward", such as:

- setting appropriate control strategies for each of the agreed regions and zones
- a shift of resources away from aerial survey of horse numbers to evaluating the effect of management on environmental impacts of horses
- defined 'heritage' areas for horses to be exposed to minimal management (possibly with buffer zones to contain horses within these areas)
- creating exclusion zones, e.g. along highways and major roads, or very sensitive habitats, and imposing buffer zones around these zones, and
- maintaining densities according to animal welfare goals in order to reduce the need to cull large numbers.

4. ABA Recommendations

The ABA proposal set out below, is based on a retaining a genetically robust Heritage Snowy Brumby population of 4,000 (but not less than 3,000).

Our proposal, is consistent with the ITRG short and long term view, and is intended to provide NPWS with an initial start point. Time has not permitted a more detailed option, but we suggest the following is a positive way forward:

4.1 Specify and quantify an impact level reference point (pre-horse removals) that can be re-measured/compared after 2,000 Wild Horse are removed, and at the same time,

a. Specify and quantify the proportion of impacts directly related to horses vs other species, such as pigs, deer, goats, wild dogs, rabbits, kangaroos etc

4.2 Specify and quantify the proportion of impacts directly related to horses vs other species, such as pigs, deer, goats, wild dogs, rabbits, kangaroos etc.

4.3 Remove 500 Brumbies annually for 5 years (2,500 in total to cover say, 500 foals being born over the 5 year period) to reduce the population to 4,000, starting with removing all Brumbies from identified highly sensitive areas, and moving on to remove Brumbies at the edge of populations in areas they will remain in, then

4.4 Conduct another Wild Horse count, and assess the degree to which impact levels have dropped the pre removal assessment.

4.5 If impact levels do not drop significantly after removing one third of the Brumby population, then a review of alternative impact sources must be made and the 4,000 level held steady while this research is being conducted,

4.6 Alternatively, if impacts show a significant improvement, then assess whether an acceptable impact threshold has been reached, per ITRG advice.

4.7 It is essential, however, that Wild Horse populations are not permitted to drop below the genetic 'safety' level of 3,000, and that this total population number is spread over several locations, as indicated by NPWS.

4.8 In time, lethal control can be avoided and populations maintained at genetically robust levels in areas they now cover (excluding high risk areas) by passive trapping. NPWS advise population growth is 7% to 17%. Population control modelling could start by being based on a rough guide of a 12% increase (using an average of NPWS 7-17%) meaning, for example:

- **A population of 4,000** would requires 480 Brumbies being removed annually to maintain the population at 4,000. Around 200 Brumbies can be rehomed annually and 280 births prevented by fertility control.
- **A population of 3,000** requires 360 to be removed annually, 200 rehomed and 160 births prevented by fertility control.

Rehoming avenue could be increased by funding rehoming groups or individuals that meet strict operating codes of practices before they can qualify for annual funding support.

In conclusion
The ABA supports the management of sustainable, healthy Wild Horses living in sustainable wild environments, and; that excessive use of an areas by all species, (native and non-native), humans and weather etc. can result in excessive negative environmental impacts

It seems we differ from NPWS because we do not assume all negative impacts are solely due to Wild Horses if they are seen in the area. We also differ from NPWS because we support the view observed by many, that moderate (Brumby) grazing **does** result in positive impacts. These differing views can resolved once robust, peer reviewed studies are conducted that can isolate both negative or positive (horse) impacts from all other impact variables.

> Observation is the first essential step in the scientific method and thinking is the second. Proposing an hypothesis is the third, and testing is the fourth. Unfortunately, modern research often begins at the fourth step by testing a preconceived hypothesis or, just as bad, bypasses the scientific method and uses data collection and statistical gymnastics to search for insights into perceived problems. This invariably gets people into trouble because they focus on association and neglect logical cause.
> *Book- Firestick Ecology by Vic Jurskis[Ref-12]*

We end the first part of our submission with the above quote from Vic Jurskis.Please read the three attachments that make up our total submission tot eh draft KNP WHMP.

Regards

President, Australian Brumby Alliance Inc.
19-Aug-2016

ABA Main Submission (see also Att.1, Att.2 & Att.3)

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

References for main submission [and 3 attachments are listed below

[Ref-1] Fortwangler 2013:Untangling Introduced and Invasive Animals (2013) Crystal Fortwangler - Environment and Society: Advances in Research 4 (2013): 41–59

[Ref-2] Bevis 2002: Horse Riding in Kosciuszko National Park - A report to Snowy Mountains Horse Riders Association - Sara Beavis, Centre for Resource and Environmental Studies, Australian National University, Canberra (November 20020

[Ref-3] Ken Thompson: Book:Story & science of invasive species by Ken Thompson

[Ref-4] Bill Gammage: Book-How Aborigines made Australia by Bill Gammage

[Ref-5] DPI 2003: http://www.depi.vic.gov.au/__data/assets/pdf_file/0007/192949/The-recovery-story-body.pdf Post 2003 severe fires recovery program by dpi Victoria. Asset Repair and Replacement.

[Ref-6] Snowy Hydro-electric and irrigation scheme: A situational and critical analysis by Diane Cousineau and Nathan Cammerman.

[Ref-7] https://www.google.com.au/search?q=Kosciuszko+mining+erosion&ie=utf-8&oe=utf-8&gws_rd=cr&ei=51IEV-qIK8i30ASDioSoBQ

[Ref-8] 3. The Snowy Hydro-Electric and Irrigation Scheme – A situation and critical analysis by D. Cousineau & N. Cammerman http://www.watercentre.org/education/programs/attachments/case-study2.pdf

[Ref-9] https://engage.environment.nsw.gov.au/protectsnowies/forum_topics/what-is-more-important-toconsider-the-estimated-population-of-wild-horses-or-the-impact-of-wild-horses-on-the-national-parkor-both In the 50s and 60s Scotch/Spanish Broom, Lupins, willows and other exotic trees were introduced during the building of the Snowy Scheme. [NPWS Admin reply to queries raised in the "Protect the Snowies" Chat room process].

[Ref-10] http://www.americantrails.org/resources/wildlife/horseenvironment.html Janzen is the researcher who has done the most studies on seeds in horse manure.

[Ref-11] http://weedsnetwork.com/traction/permalink/WeedsNews1938 Hikers spread invasive plant seeds (2011)

[Ref-12] Vic Jurskis: [Book- Firestick Ecology by Vic Jurskis]

[Ref-13] DPI 2013, *New South Wales Biosecurity Strategy 2013–2021*, Department of Primary Industries, www.dpi.nsw.gov.au/__data/assets/pdf_file/0005/467699/NSW-biosecurity-strategy-2013-2021.pdf.

[Ref-14]- DPI 2013, *New South Wales Biosecurity Strategy 2013–2021*, Department of Primary Industries, www.dpi.nsw.gov.au/__data/assets/pdf_file/0005/467699/NSW-biosecurity-strategy-2013-2021.pdf. AUSVETPLAN wild animal manual.

[Ref-15] Hope GS, Nanson R & Jones P **2012**, *Peat-forming Bogs & Fens Snowy Mountains of NSW, Technical Report*, NSW OEH, www.environment.nsw.gov.au/resources/nature/120257PeatBogs.pdf

[Ref-16] Drying 1990: Dyring J 1990, Impact of Feral Horses (*Equus caballus*) on Sub-alpine and Montane Environments in Australia (Masters), Faculty of Applied Science, University of Canberra, Australia

[Ref-17] Fire Management in the Alpine Region; Vic Jurskis, Paul de Mar (Forests NSW) and Barry Aitchison (NSW Rural Fire Service).

[Ref-18] Detecting stream health impacts of horse riding and 4WD vehicle water crossings in South East Queensland: Sally-Anne Redfearn, Wade Hadwen (Griffith School of Environment). Peter Negus Joanna Blessing, Jon Marshall, (Water Planning Ecology, Qld Environment and Resource Dept.

[Ref-19] http://www.depi.vic.gov.au/__data/assets/pdf_file/0007/192949/The-recovery-story-body.pdf Post 2003 severe fires recovery program by dpi Victoria. ASSET REPAIR and REPLACEMENT

[Ref-20] Snowy Hydro-electric and irrigation scheme: A situational and critical analysis by Diane Cousineau and Nathan Cammerman.

[Ref-21] Adda Quinn's manure paper https://www.bayequest.info/static/pdf/manure.pdf

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