Submission No 77

INQUIRY INTO PROPOSED AERIAL SHOOTING OF BRUMBIES IN KOSCIUSZKO NATIONAL PARK

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Submission to - Inquiry into proposed aerial shooting of Brumbies in Kosciuszko National Park

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Introduction

The wild horse management issue has been going on for many years now. To resolve the issue there has to of course be compromise on BOTH SIDES.

Wild horse advocates have tried to offer many compromises - in fact anything *that AVOIDS* LETHAL MANAGEMENT. This includes - removals for rehoming, relocating to less sensitive areas, contraceptive population control and Reserve Design. But as these are not the cheapest or easiest options they are pushed to one side in favour of only one option of lethal control.

Of EXTREME IMPORTANCE is to first of all TRULY establish the effects of the wild horses in this environment. Also of EXTREME IMPORTANCE is not to lay the blame on the wild horses for damage done by other species! And also of EXTREME IMPORTANCE is to be transparent, honest and manage the issue with integrity and empathy because of the sensitivity of the issue and also the fact that horses are of course sentient beings. This is now scientifically very well established.

So here are considerations that need to be taken into account :-

Lack of independent research studies done on wild horses in the Australian Alps

"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 (Beever & Brussard 2000). Exclosure plots that exclude all grazing herbivores are likely to exaggerate the impacts of horses (Linklater et al. 2002). Some studies fail to find an effect, or may even find a positive impact (e.g. Fahnestock & Detling 1999)."
"Some methodological problems make interpretation difficult. 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 (e.g. Linklater et al. 2002)."
"The ITRG concludes that there are significant knowledge gaps in our understanding of horses in KNP."
"Surprisingly little is known about the ecology of horses in KNP. "

Reference-
https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Animals-and-plants/Pests-and-weeds/Kosciuszko-wild-horses/final-report-independent-technical-reference-group-supplementary-wild-horse-management-plan-160221.pdf?la=en&hash=26B121837E28A2C68514B34D99A21C18F7557E16

"Research on feral horses is surprisingly lacking in Australia and would benefit from national leadership and direction. It should: accurately map the distribution and abundance of feral horses;

quantify feral horse impact in relation to density and control; evaluate the humaneness and suitability of control techniques; document community and stakeholder perceptions on feral horse impact and management; and assess whether feral horse impacts threaten native species or communities."

"There is a scarcity of published peer reviewed research on feral horses in Australia. The relationship between feral horse density and damage remains to be quantified in any area, which impedes effective management. Much of the evidence on environmental impacts and population ecology is anecdotal" (36)

"The assumption that an introduced animal is causing damage may not be correct. Feral horses in some places may in fact be beneficial. They may be reducing bushfire fuel loads by removing grass. They may be exerting no negative impact at all and simply providing pleasure for those that love seeing wild horses living free in the bush. Control in this case would be a waste of time and money." (36)

"In general, although a significant amount of studies have been done on the effects of herbivores on the environment, there are still relatively few studies specifically about the effect of wild horses. (Beever, EA and Brussard, PF 2000, 'Examining ecological consequences of feral horse grazing using exclosures', Western North American Naturalist 60: 236–254.)" (36)

Latest research

This year, a new research paper was published after several years of researchin the ANP by Dr Berman.Dr Berman was of course a well respected member of the Scientific Advisory Panel. Here are some of the comments and findings of this report:-

"But contrary to assertions made in earlier studies (Tolsma et al. 2018), almost all (>99%) of the area we surveyed by walked transect on the BHP had no detectable evidence of grazing or trampling associated with the presence of horses (Fig. 5, Table 3). Even in the EVA, where feral horse faecal pile density and impact were significantly higher than the BHP, the vast majority of the area surveyed (> 82%) had no evidence of grazing or trampling"(56)

"But a 'high proportion of sites with horses present' says nothing about the level of horse impact at those sites, and is also not particularly noteworthy given that sites were initially selected because of horse presence. Thus, although the proportion of sites with sign of horses was understandably high given sampling efforts focused on areas with known horse presence, the proportion of those sampled areas with actual horse impact was extremely low (< 1%) on the BHP and low (< 18%) in the EVA"(56)

"Dyring (1990) also recorded 0.2% of the area of one of her sites subjected to path impact. This small area of impact does not appear to vary with horse density (Fig. 4c), so removing or managing horse populations is unlikely to change the proportion of the area affected by this type of impact. Multiple animal species, including native animals like wombats, or introduced animals like deer, will use and maintain the paths even with reduced feral horse use, so some, if not all, these paths are likely to remain even if horses are removed."(56)

"We also found the combined impact associated with the sign of deer, feral pigs, humans, and fire to be large compared to the impact associated with the sign of feral horses alone, particularly on the BHP"(56)

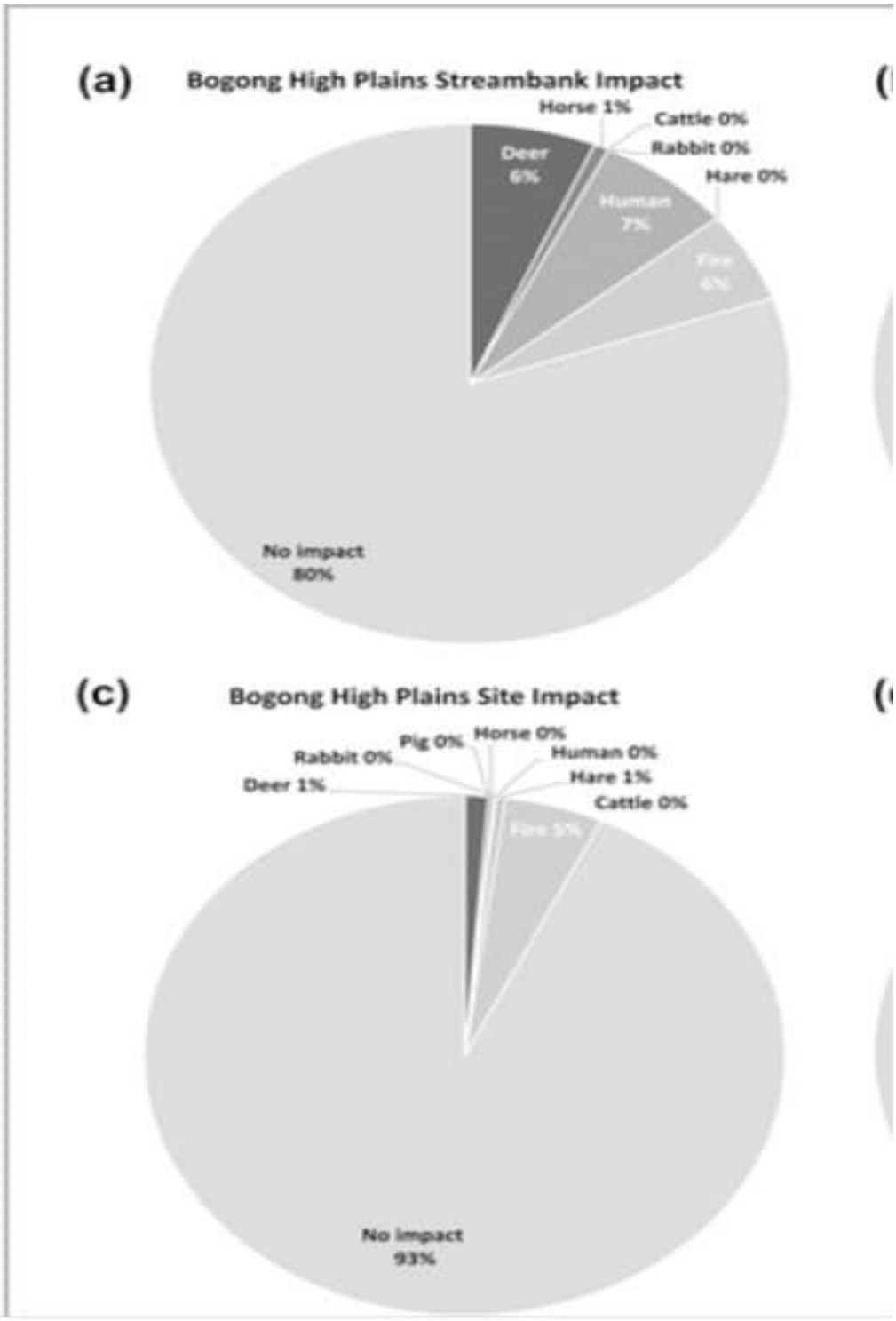
"These results show clearly that in spite of deer and feral pig control and management of fire and human activity (Parks Victoria 2016, GSBMPWG 2020, Comte et al. 2022), these combined impacts far exceed those impacts associated with the sign of feral horses. (56)

"Inadequate quantification of the impact or activity of other species, coupled with failure to consider differences in faecal decay/disappearance rate or detection probability, mean that previous assertions about the negative environmental impacts of horses in the Australian Alps are highly likely to be overestimated compared to the impact of other animals, such as deer.
We also found it difficult to disentangle the impact of wild or feral horses from the impacts of domestic horses frequently brought into the study area for recreational purposes, which was likely to have also influenced earlier studies but was not mentioned (Robertson et al. 2019). Likewise, we further found it extremely difficult to disentangle the stream bank impact attributable to deer, horses, or feral pigs given that they all drink, wallow, or cross streams in the same places."(56)

"This is one of the sites where exclusion-fenced plots built in 1999 are commonly used to demonstrate the impact of feral horses (Wild and Poll 2012, Williams et al. 2014) with no consideration of the high relative impact of deer activity at the same site."(56)

WILD HORSES HAVE BEEN SHOT IN GREAT NUMBERS IN THE ANP in spite of this!

BASED ON FALSE METHODOLOGIES, FALSE BLAME, LACK OF INDEPENDENT RESEARCH


(a)
Bogong High Plains Streambank Impact
Horse 1%
Cattle 0%
Rabbit 0%
Hare 0%
Deer 6%
Human 7%
Fire 6%
No impact 80%
(c)
Bogong High Plains Site Impact
Pig 0%
Horse 0%
Rabbit 0%
Human 0%
Deer 1%
Hare 1%
Cattle 0%
Fire 5%
No impact 93%

TERMS OF REFERENCE

(a) the methodology used to survey and estimate the brumby population in Kosciuszko National Park

Establishing a truly accurate, biologically and scientifically possible population estimate :-

Population increase rates in the AANP from previous research

Population dynamics of wild horses in the Australian Alps National Parks, was studied in detail at several sites each spring and autumn, between 1999-2002. The sites were Big Boggy, Cowombat and Currango. The sites were chosen because wild horses could readily be found in these areas. They were independent (too far apart for the horses to move in-between) and there was no management done in these areas for the period of the surveys. The annual population increases for these 3 areas were found to be - Big Boggy – **7%**, Cowombat – **3%** and Currango – **9%**. (1)

Surveys have been done almost annually in the Big Boggy area of the Kosciuszko National Park using the mark-recapture method from 2006-2019. In 2012 the estimate of horses in this area was 195. In 2019 the estimate was 220. The annual population increase for this period therefore is approx 5% per year. (2)

Page 11 of the Kosciuszko National Park Draft Wild Horse Management Plan 2016 states – "In Kosciuszko National Park, populations are likely to increase by between 6% and 17% per year". (3)

Page 12 of the Kosciuszko National Park Horse Management Plan 2008 states – "The horse population can increase by up to 20% per year when conditions are good, but the population growth rate in Kosciuszko is expected to be closer to 8% (Dobbie and Berman 1992; NPWS 2003)." (4)

This follows many other scientific papers on this matter and previous and other reports by the NPWS.

Current population situation Kosciuszko National Park

In the new plan of management for the Kosciuszko National Park Wild Horse Population, maintenance of the wild horse heritage values has been based on leaving 3,000 horses in the areas of the Park that are designated as wild horse retention areas. (5)

The major problem with this is, that this has been based on a starting figure taken from the estimation done in the 2020 survey of 14,380 (6). This is therefore assuming reduction of 11,380 horses over the period of the plan. If attempt is made to remove this amount of horses there will actually be none left at all in the whole Park. **This would of course not be in keeping with the legislation of 2018.**

I would like to clarify this statement. I have concentrated on the North Kosciuszko region as this is where the majority of horses are - approx 85% according to the official 2020 survey by Cairns (6) and these are the horses that have been subjected to massive removals in 2020-2023.

Previous surveys, using the Distance Software (applied by Cairns) have produced estimates that are **scientifically and biologically not possible for the species.** For instance the reported annual increase of 37% (7), (which in actual fact calculates at 41% after accounting for removals and this was a major error when calculations were done) in the North Kosciuszko area between 2014 and 2019, which is approximately DOUBLE the accepted scientific maximum (refer to above normal rates of increase). This was pointed out in the peer review by St Andrews University – **"The block specific finite rates of growth are likely at the centre of the 2019 report. The high rate of growth reported for the North Kosciuszko block are of particular interest as it appears to exceed published maximum growth rates for the species.**" (8)

No feasible explanation was ever given, because there isn't one. This anomaly was also pointed out by the Scientific Advisory Panel in their final report to the Minister. – **"The rate of increase in north KNP between 2014 and 2019 is above the biologically possible rate of reproduction (Garrott et al. 1991**)." (9)

The only reason given as a possibility was movement of horses, but in the document - 2019 Australian Alps Feral Horse Aerial Survey: Summary Report (10), it states – "Feral horses (Equus caballus) also known as 'wild horses' or 'brumbies' occur in three large and currently **separate distribution areas** of the Australian Alps National Parks (AANP) and adjoining State Forest areas."

In spite of this ludicrous estimate that is not biologically possible, the surveys have continued to be done in the same way. And, in fact, the purported annual increase in the Southern Kosciuszko region between 2020-2022 calculates at approx **95% - even more ludicrous than before and of course totally impossible!** Whereas in the Northern Region, the increase calculates at approx 6%, which is a realistic increase and a far cry from the once again ridiculous purported 41% annual increase from the previous surveys!

There is a similar situation with the kangaroo surveys, which have shown supposed increases of over 400% - also absolutely not biologically possible for the species. This was brought up in the recent Kangaroo Enquiry AND YET, when doing both the new trials of survey methods in the localised areas of planned removals in 2020 and the new official published surveys again done by Cairns in 2020 and 2022, the choice was made to use this software yet again, in the full knowledge that it is producing scientifically and biologically impossible purported annual increases and therefore numbers. I have personally written to NPWS, the Minister, all NSW Members of Parliament and St Andrews University in Scotland pointing out this very serious problem. So they have all been made aware of this.

The scientific advisory panel recommended doing more localised counts and trialling different methods of counting. They recommended doing this prior to removals starting and then regularly monitoring the population during removals. The localised counts done prior to removals were done only in the 3 areas planned for removals and the opportunity was therefore available to conduct a

real head count, rather than using this software again, which had already proven to show biologically impossible estimates. However, once again, the “Distance Software “ was applied to elevate the numbers!

Comparison of numbers estimated by the previous Cairns survey and the trial surveys done in 2020, only go to show how ludicrous the results being produced are. I have made comparison here of some of the supposed population estimates in the 3 areas that were designated for removals under the post fire wild horse control.

So, in the 3 blocks where removals have taken place- (figures obtained in GIPA release)(11)(12)

Zone 1 - Nungar
Cairns estimate was **2191 horses**
The SAP estimated a significantly lower amount of 700 in the area.
However results from the new helicopter survey estimated only **163 horses**
And the helicopter survey with thermal imaging estimated **135 horses**

Zone 2 - Cooleman Plain
Cairns estimate 2464
SAP estimated 3600
Helicopter normal estimated 2400
Helicopter with thermal imaging- 1630

Zone 3 - Kiandra
Cairns estimate **2707**
SAP estimate 320
Helicopter normal - **824**
Helicopter with thermal imaging- **1051**

Comparison of estimates from the localised counts done in the 3 areas of removals

	No of clusters seen	Average cluster size	No of horses seen	Estimated	Increase by computer software
Cairns				7362	
Helicopter	122	3.8	**463**	3387	630%
Helicopter with Thermal Imaging	72	2.88	**207**	2816	1250%

On the “normal helicopter” survey, they saw 122 clusters of horses. Average cluster size- 2.9-4.3. So actually saw approx. 463 horses. In all 3 areas. The rest were computer generated. Elevated to 3,387
On the helicopter with thermal imaging, only 72 clusters were seen. Approx. 207 horses. Elevated to 2,715
UAV survey on Kiandra, spotted 32 clusters - approx. 106 horses.
Cairns total for these areas **7,362! More than double the other surveys that still used the Distance Software**. Absolutely ludicrous and more proof that using the software to estimate these numbers is not working by any stretch of the imagination. A measure of the scientific soundness of these surveys has to of course be based on whether the results are even biologically possible for the species. The results are not biologically possible and therefore this should have been taken to **realise that these surveys are not working as they are not scientifically sound.**

All surveys conducted with helicopter would involve double counting because, for the most part, horses will most certainly run from one transect to another. This was also brought up in a previous peer review by St Andrews. One assumption of the software is of course No Movement.

See below for horses actually seen in the 2014, 2019, 2020 and 2022 surveys with percentage increases by use of the software and comparison to the headcounts done annually by Parks. (6, 7, 13)

Comparison of numbers of horses actually seen to survey estimates and headcounts - Northern Kosciuszko Region

	No of clusters seen	Average cluster size	No. of horses seen	Estimate	Increase by computer software	NPWS actual headcount
2014 Cairns	**104**	**3.55**	**369**	**3255**	**970%**	**1637**
2019 Cairns	**269**	**4.82**	**1298**	**15687**	**1110%**	**3120**
2020 Cairns	**164**	**4.41**	**723**	**12511**	**1630%**	**2468**
2022	**288**	**4.36**	**1255**	**12714**	**913%**	**?**

Please take note of the figure from the **NPWS actual headcount (spotting count) done in 2020. (see below**). This showed a figure of 2468, before drastic removals! Not 12,511!

As it is stated in the Cairns survey document done in 2020, that 85% of the horses in the Park are in the Northern Region, it is absolutely clear that there are already less than the 3,000 horses proposed to remain in the Park.

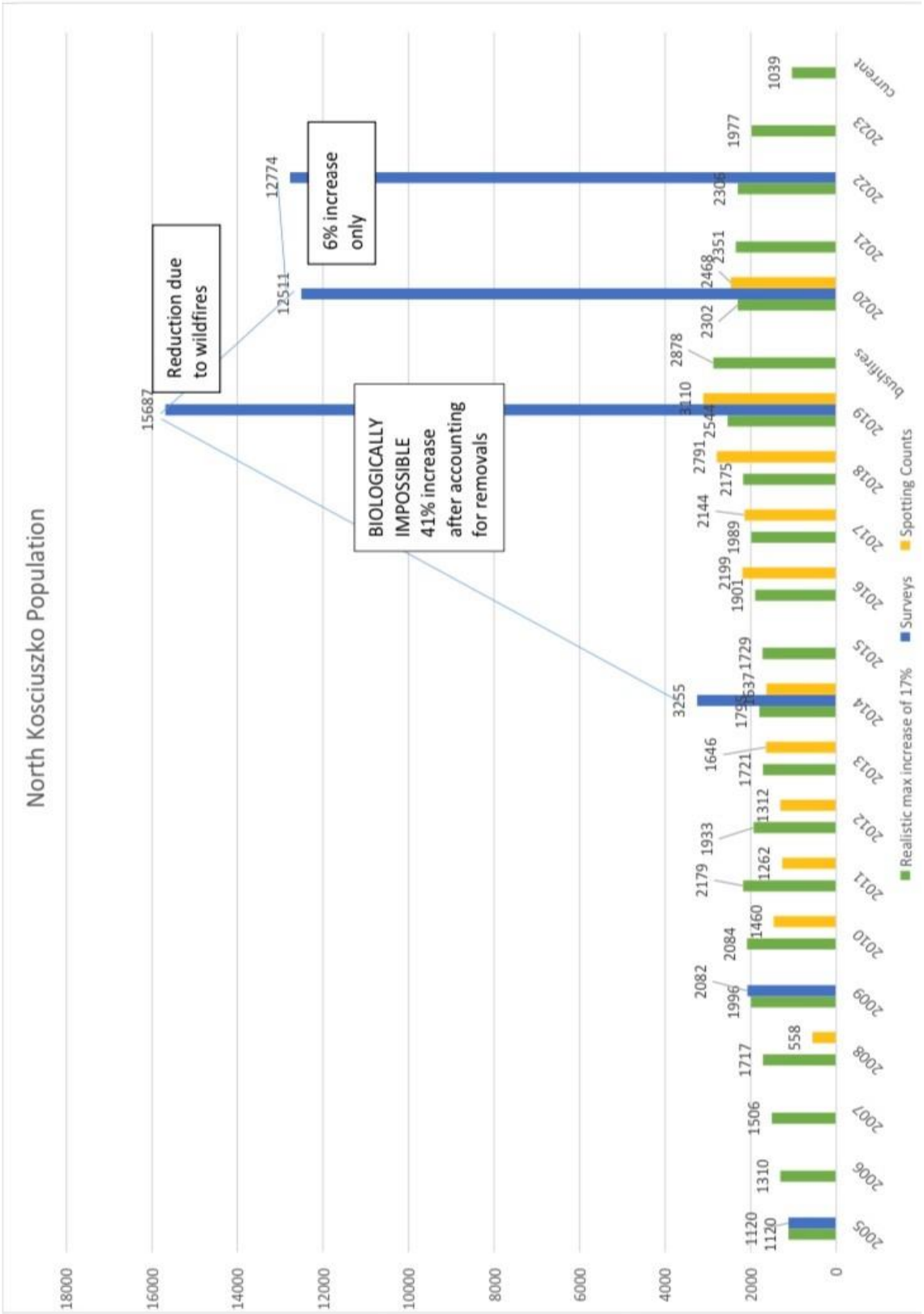
A helicopter spotting count was undertaken in 2021, in the Northern Region of the Park by the Snowy Mountain Brumby Sustainability and Management Group at their own expense. They counted 838 horses in this area of the Park. Although clearly some may not have been spotted, it would be impossible for them to have missed 11,673 horses!

I have calculated in the below table a realistic wild horse population estimate for the Northern Region, starting with the population figure taken from the well-respected survey done in 2005 by Montague Drake, that is quoted in many official documents. I have then calculated annual population increases of 17% per annum which is at the upper end of the scale of recognized scientific increases for wild horses and much higher than the previous estimations of increase shown above for the Kosciuszko National Park. I have then compared this to some of the more recent results from the annual spotting counts done by NPWS. It's absolutely clear that the helicopter spotting counts already undertaken annually, are giving far more realistic estimates of numbers than the Distance Software surveys.

Calculations made starting with the results of the 2005 survey done by Montague Drake and then using a realistic scientific wild horse population increase per year of 17%

Yea	start pop	17% inc	Removals	End Pop
2005	1120	190	0	1310
2006	1310	223	27	1506
2007	1506	256	45	1717
2008	1717	292	13	1996
2009	1996	339	251	2084
2010	2084	354	260	2179
2011	2179	370	616	1933
2012	1933	329	541	1721
2013	1721	293	218	1795
2014	1795	305	372	1729
2015	1729	294	122	1901
2016	1901	323	235	1989
2017	1989	338	152	2175
2018	2175	370	0	2544
2019	**2544**	433	99	2878
bushfires	**2878**		576	2302
2020	**2302**	391	343	2351
2021	**2351**	400	444	2306
2022	2306	392	722	1977
2023	1977	336	1274	1039

For a more visual effect of how ludicrous the survey numbers are, I have done a graph with the computed increases at 17%, plus the results from the annual spotting counts and compared to the "official" survey results done by Cairns.(see below).

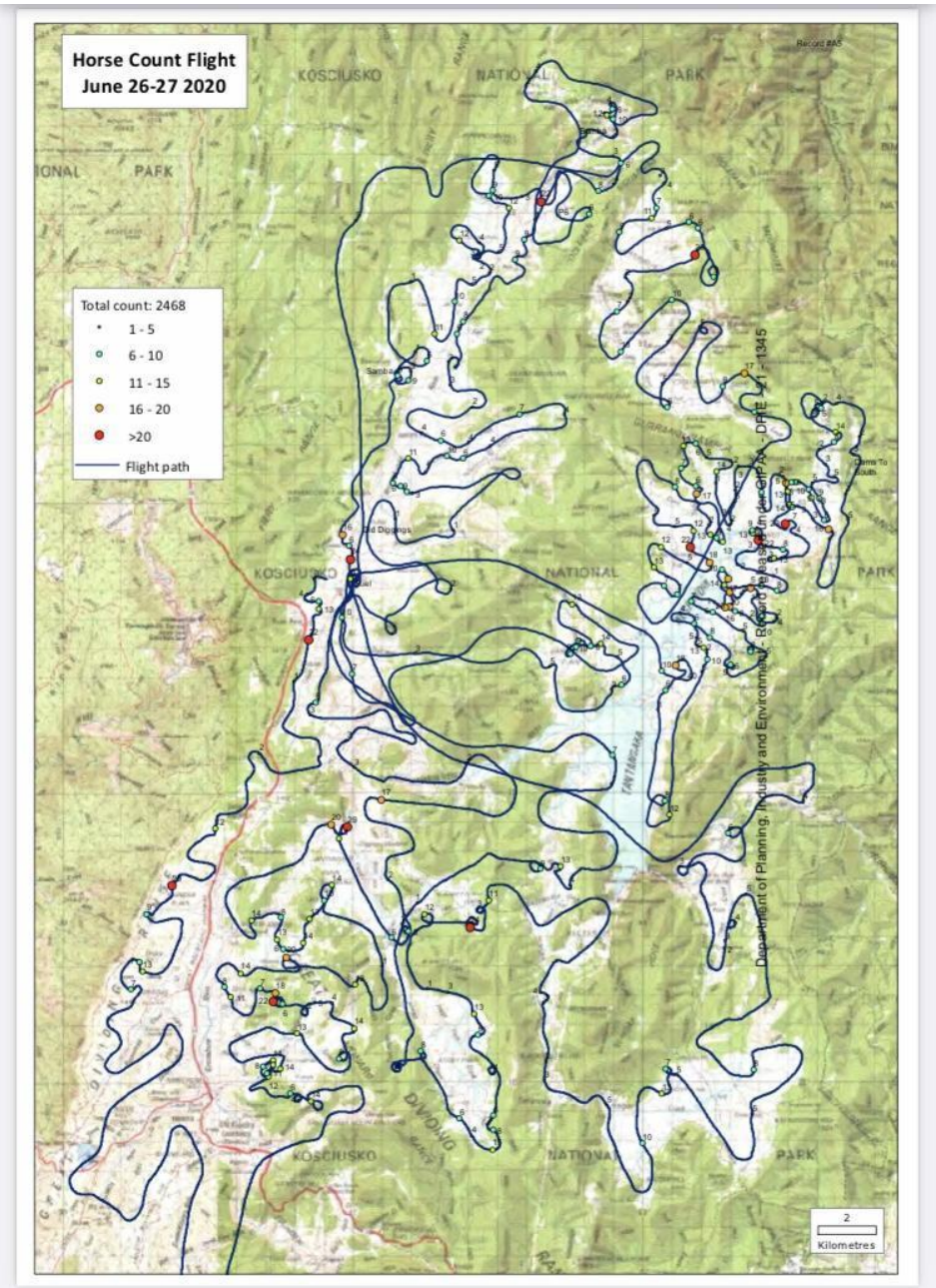


It's clear from the above, that before ANY further management is undertaken, it is absolutely imperative to know more accurately, how many horses are currently remaining in all of the Parks. It is certain that there is already less than 3,000 horses remaining in the Kosciuszko National Park.

A new ACTUAL headcount therefore needs to be undertaken as soon as possible, on both the Kosciuszko National Park and the Alpine National Park, Victoria and the Barmah National Park (where similar ludicrous estimates have been made using this software.This could be done using the same helicopter spotting count that is done every year by NPWS, BUT THIS MUST INVOLVE WILD HORSE ADVOCATES, as recommended by the Scientific Advisory Panel. To get a fair and impartial count, there definitely has to be people from both sides involved. As we know that 85% of the horses are in the Northern Region of the KNPark and these spotting counts have been successfully undertaken every year, we know it is possible to do this successfully and then it is easy to estimate the other 15% in the rest of the Park.

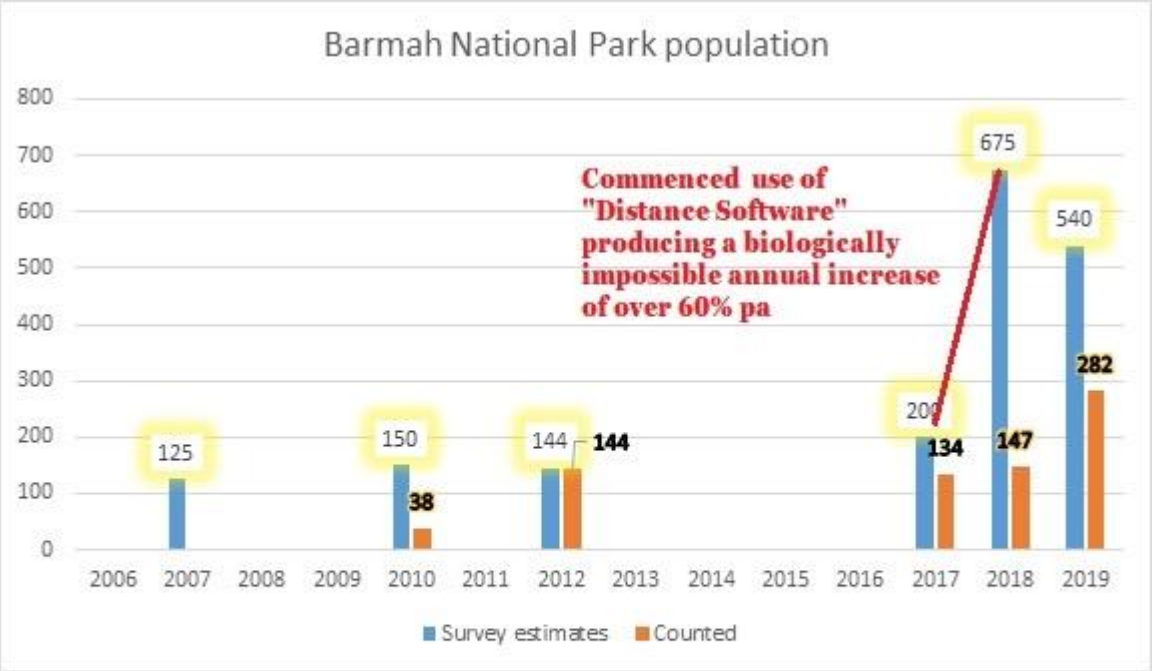
All surveys done using the Distance Software and other similar equations or computer modelling software should be halted, because, as shown by all of the above, they have given ludicrous estimates that are not scientifically or biologically possible and with estimates that are varying so enormously that it is absolutely ludicrous to continue with them. Not to mention the waste of funding involved!

Both the ITRG and the CAP and SAP always recommended involvement of the community in all and any population surveys. This has never been done and needs to be remedied immediately. Deliberate continued use of methodology that is producing estimates that are not biologically or scientifically sound is irresponsible of course. Especially when the lives of possibly thousands of wild horses are involved.



Results of annual headcount in Northern Region of Kosciuszko National Park 2020

Similar issues have occured with the use of this software in the whole of the AANP and Barmah National Park. As you can see from the charts below, when the “Distance Software” came into use, the annual increases once again became biologically impossible and therefore completely ludicrous. The numbers actually seen are way more realistic based on wild horse science and local observations from both Advocates and staff from PV.



Terms of reference (b) - the justification for proposed aerial shooting, giving consideration to urgency and the accuracy of the estimated Brumby population in Kosciuszko National Park :-

As I have shown above, the population estimates are completely ludicrous and biologically impossible for the species. The “argument” for using aerial shooting is the purported sheer volume of horses in the Park. As these purported numbers
are nowhere near the reality of the situation and the reality is that there are already below the legislated requirement of horses to remain in the Park, there is ABSOLUTELY NO JUSTIFICATION for aerial shooting or in fact any shooting of the wild horses.

Terms of reference -(c) - status of and threats to endangered species in Kosciuszko National Park

Threatened Fauna and Flora - the true story

I absolutely dispute the inference that the wild horses are threatening to the native Fauna and Flora in the Park. The threats are from other major contributors! As below: –

Threats to Corroboree Frog

Corroboree Frog threats -

- chytrid fungus
- climate change
- droughts
- wildfires
- predation by carnivores

"The spread and persistence of chytrid fungus in the population is facilitated by a species living alongside the Corroboree Frog, the Common Eastern Froglet (Crinia signfera). This species appears to sustain high infection levels, but doesn't develop the disease. As a result, it acts as a reservoir host, sustaining the disease in the ecosystem and allowing transmission to other species." (38)

"An additional threat to the Southern Corroboree Frog is climate change. Reduced precipitation and warmer temperatures are likely to eventually affect breeding pools and vegetation around them. Droughts already result in egg and tadpole deaths, and as the frequency of droughts increases with climate change, the capacity for the Southern Corroboree Frog to recovery greatly reduces." (38)

"There are few peer-reviewed studies of the impacts of feral horses on ecosystems in this region." (39)

"We surveyed the scene, calling out: "Hey, frog!". At ponds not severely burnt, reasonable numbers of northern corroboree frogs responded. At badly burnt sites where frogs had been found for 20 years, we were met with silence. The adults there had likely died." "After the fires, heavy rain in denuded burnt catchments produced water runoff laden with sediment. Some frog breeding habitat was eroded and filled with silt and ash. Once-mossy ponds were now gravel and ash." (40)
"They contained a fascinating series of photos. Some revealed how a number of ponds largely escaped the fires, only to be destroyed afterwards by flooding." (40)

The Smoky mouse threats

"Major threats to the species include predation by introduced carnivores, habitat changes due to altered fire regimes and dieback caused by the Cinnamon Fungus (Phytophthora cinnamomi), and loss, modification and fragmentation of habitat due to road construction and intensive timber harvesting." (41)

The Broad toothed rat threats

Main threats -

- Predation by wild cats and foxes
- competition and grazing by rabbits
- Competition, disease transmission and habitat degradation by wild Pigs
- Catastrophic fire events
- Global warming causes loss of snow cover resulting in increased exposure to foxes and cats.
- Climate change resulting in loss of sub-alpine and alpine habitat, and; spread of the plant root fungus Phytophthora cinnamom
- Habitat loss, fragmentation and degradation from roads, ski runs, buildings and recreational activities. (42)

The Alpine Skink

Main Threats –

"Wildfire has the potential to eliminate the species"
"Historically, large tracts of habitat have been lost as alpine resort villages have been constructed and expanded. Construction of dams has destroyed habitat that was almost certainly occupied by the species. Concurrent development of infrastructure such as roads, tracks and ski runs have also destroyed and fragmented habitat. Development of ski runs may have a greater than expected effect on habitat for Alpine She-oak Skinks, as it is more favourable to build ski runs in large, continuous grassy areas that provide a uniform surface. These large grassy areas are the optimal habitat of the Alpine She-oak Skink. "
"Predation by Rats (Rattus rattus), Foxes (Vulpes vulpes), Cats (Felis catus) and Wild Dogs (Canis lupus familiaris) is a current threat."
Also mentioned are weed invasion, climate change and trampling of habitat by ALL animals. (43)

Threatened Flora

Results from surveys did not reveal a significant effect of wild horse grazing on plant community composition, species richness, diversity, evenness, or dominance. And the effects of horses did not vary by site, indicating that different precipitation levels do not drive differences in grazing effects (27) (29)

In fact plant species richness was higher in horse grazed compared to ungrazed areas. Butterfly and bumblebee habitat use, as well as feeding and resting activities were also higher in grazed areas. (28)

A study showed that horse grazing resulted in overall increases in heather and herbaceous cover and decreases in gorse cover and height, with scarce differences among vegetation types. Floristic diversity increased more over time in grazed than in ungrazed paddocks. . Some herbaceous species characteristic of heathlands were favoured by horse grazing. Horse grazing reduced gorse

dominance, controlling excessive accumulation of combustible material and **REDUCING FIRE RISK**, and promoted the presence of species of conservation interest, so is a promising management tool for restoration of heathlands and their biodiversity." (26)

"The peatlands have been badly affected by cattle grazing and fire since European settlement of the region commenced in 1823. Some recovery is evident within protected areas but serious fires in 2003 reversed this process in many areas." (30)

"These bog communities are also critical habitats for species such as the endangered Northern Corroboree Frog and rare Broad-toothed Rat."
"**CLIMATE CHANGE** is going to have a significant impact on the Sphagnum bogs and fens, through drought, increased temperatures and increased incidence of wildfire." (32)

"As far as the possible role of endozoochory for conservation of plant diversity in grassland is concerned, the results emphasise the importance of large herbivores as potentially strong seed dispersal vectors." (30)

Review of some papers purporting horse damage

Reference to:
An Assessment of Feral Horse Impacts on Treeless Drainage Lines in the Australian Alps - December 2015 (wordpress.com)

"The proportion of horse-present sites that showed evidence of recent fire was lower than that for horse-free sites (46% versus 76%)"

***Therefore showing that sites where horses are present are less likely to be prone to fire*.**

"Two vegetation-related variables were assessed; projected foliage cover and the proportion of foliage cover that is native. No significant differences were detected among horse-present and horse-free sites for either of these variables"

NO DIFFERENCE in vegetation cover and proportion of native foliage.

"To remove the potential influence of wombats, macropods and exotic grazing and browsing mammals on soil, stream stability and vegetation cover, the data were re-analysed excluding sites where evidence of the presence of any of these species was detected."

The influence of wild pigs and deer were therefore not removed.

"Stream channel width (m)Mean – signs of horses not present 1.0 Signs of horse presence 0.9"

As above – the influence of deer and wild pigs not taken into account. Horse presence does not mean horse damage.

Reference to:
Assessment of Impacts of Feral Horses (Equus caballus) in the Australian Alps (wordpress.com)

"The Experimental Monitoring Programs"
"Two studies were established at each of two sites, as described below. The aims of these experiments are to compare the effects of removal of grazing with continued grazing by feral horses on floristic composition and structure of favoured grazing areas (grasslands), and on bank condition and disturbance of two small streams at the study sites"
"Methods"
"Replicated exclosure experiments were established at two sites (Cowombat Flat and Native Cat Flat). These sites were selected by the AALC and Friends of the Cobberas as areas that support permanent populations of feral horses but are not currently grazed by cattle (although both have been grazed by cattle in the past)." "fenced to exclude horses but not other grazers (rabbits, wombats, macropods), and unfenced so that grazing is unrestricted."

To show differences in areas excluding horses, the exclosure plots would HAVE TO EXCLUDE ONLY HORSES! Very small animals like rabbits and wombats were not excluded but other large grazing animals like DEER AND WILD PIGS were excluded! - mentioned in the ITRG report

Reference to:
2013 Observations of Pest Horse Impacts in the Australian Alps (sqspcdn.com)

"This "Observations" Report is produced for general information and is a record of personal observations made by the authors for the Mt Pilot area of Kosciuszko National Park in 2013. "

Observations only. And again using exclosure plots and therefore excluding all larger animals including deer and pigs therefore damage that cannot be attributed only to horses.

Reference to:
feral-horse-impact-thesis.pdf (wordpress.com)

"Exotic species colonised tracks, but not at the expense of the native species."

Very old paper from 1990. Much of the paper is concerning dung piles relative to population but then also concentrates on study of tracks. Native species of flora even on tracks not affected !

"However, when crossing streams they avoided the Sphagnum in favour of the more solid ground under grassy and herbaceous vegetation, if this was available."

Confirming what we all know that horses will avoid these soft areas if at all possible!

"Soil is often in a highly compacted state on tracks used by horses or other animals."

No differentiation between horses and other animals, therefore cannot be associated only with horses! Refers to studies done with shod domestic horses to show trampling effects on tracks! Tracks frequented not only by many different animals but would be used by humans also!

"However, in the current study, many of the pre-European Sphagnum Bogs would have already disappeared because of cattle grazing which was phased out in the early 1970's, leaving the open herbaceous and grassy areas."

Speaks for itself!

Reference to:
feral-horse-exclusion-plot-monitoring-and-analysis_final_1.pdf (wordpress.com)

"However, these impacts cannot be separated from those of deer"

Again the use of exclusion plots that excluded all of the larger animals including deer and pigs! The paper is supposed to be concerning horse exclusion but does not only exclude horses in these plots!

Reference to:
feral-horse-exclusion-plot-monitoring-and-analysis_final_1.pdf (wordpress.com)

"Our study is, to the extent of our knowledge, the first that has used BFAST to generate fPAR derivatives to explore the link between feral herbivore impacts on the phenology of vegetation."

Again a study done on the impact of all herbivores, where horses were present but not necessarily the cause of the damage. Deer and in fact pigs again would also be present in these areas!

Reference to:
Assessing the Impacts of Feral Horses on the Bogong High Plains, Victoria (amazonaws.com)

Again only observation study assuming that anywhere that horses were present, that horses were doing any damage seen! Any one of all the wildlife population in this area could be the cause of any damage seen!

Positive impacts of Wild Horses

There has been increasing scientific study worldwide showing the ecological benefits of wild horses and they are being used for regeneration of degraded ecosystems including forested and alpine areas. Wild horses reduce bushfire fuel loads. Research has shown that when herbivore populations deplete, catastrophic wildfires take over because excessive amounts of ground fuels act as kindling. There was scant evidence of fire until the megafauna disappeared. (14)(15)(16) Native animals and their habitat have been decimated by fire more than anything else. And waterways adversely affected. Not to mention the damage to human's health and property.

Wild horses reseed native grasses by intact seed dispersal in their droppings (17), are soil builders/fertilisers of soil via their droppings, which build the humus content of soil, allowing soil to gain more texture and retain more water. Hence ground water tables are replenished, feeding more seeps and springs more continuously. They create more abundant and dependable water sources in dry areas and break up ice and snow, helping other wildlife to survive.(14)

Large wild herbivores are crucial to ecosystems and their removal has a cascading effect on other species. Evidence from Australia suggests that rainforest was converted to sclerophyll vegetation in the aftermath of the loss of megafauna. (29) Herbivores greatly accelerate the nutrient cycle in ecosystems by returning nutrients to soil at high rates. (7)

The damage is being done by other species and blamed on the wild horses

Some research and live video supporting the positive impacts of Wild Horses and disputing the negative effects

My Big Backyard Productions - YouTube

Experimental rewilding enhances grassland functional composition ...

https://www.horsetalk.co.nz/2020/09/08/justice-equine-scapegoats-australia-brumby-debate/?fbclid=IwAR1cWANnOymexy-8uDP_LwamBM_jw3heJBX-7r8p-_5BJMKwtufhrsAQl4Y

Horses keystone species regeneration earth

Spotlight on the overlooked role of horses as carbon sequesters

Brumbies can fill a useful role in Australian ecosystems, says ecologist

https://www.eurekalert.org/pub_releases/2020-03/uots-cal031820.php?fbclid=IwAR0Dm8iIt6omw_KHIMsJs_d2mz4ej3zN14HPI4bD8kzwWQW5ljoRTfbElkU#

https://earthledger.one/feral-horses-gallop-to-the-rescue-of-butterflies-in-distress/

In defence of australias brumbies

Interest payments in wild horses | Rewilding Europe

https://rewildingeurope.com/search/wild+horses/page/1/

Rewilding horses in Europe. Background and guidelines - a living ...

Wild Horse Fire Brigade

https://mobile.twitter.com/BBCSpringwatch/status/1285549837308645377?s=07

A Geographic Assessment of the Global Scope for Rewilding ... - PLOS

https://m.facebook.com/groups/1165599150138501?view=permalink&id=2442680152430388

https://m.facebook.com/groups/1165599150138501?view=permalink&id=2459073827457687

https://snowybrumby.wordpress.com/2014/08/26/brumbies-facts-you-should-know/

https://www.bellingencourier.com.au/story/5425985/letter-brumbies-in-national-parks-a-new-perspective/

The real causes of damage - OTHER ANIMAL AND HUMAN DAMAGE

In spite of the millions of other "introduced" animals like deer, pigs, wild dogs, goats and rabbits who are well known to do massive damage, the wild horses are singled out for elimination.
Impacts to the environment by humans include building of dams, tourism, recreational vehicles, ski runs and facilities and climate change. And yet the wild horses are the scapegoats. Most ecologists and scientists confirm global warming to be the main cause of species decline and extinction.

Wild pigs damage

Wild pigs cause serious habitat degradation by rooting in the soil in search of food, dispersing seeds of weeds, regular wallowing and digging of dust-beds can impact on terrestrial and aquatic systems through erosion, siltation and increased turbidity.

"While searching for populations of threatened plant species in the Kiandra area between 1999 and 2001, we noticed considerable damage to sub-alpine treeless vegetation by pigs. Most damage was recorded in dry grassland communities and was evidenced by denuded circles up to 20 m in diameter. Some of these bare circles appeared to have been scoured more than once, judging by the varying amount of regeneration within them."
"A group of 15 pigs and piglets was observed in Nungar Plain during the survey. Damage to vegetation by pigs is obvious and extensive. Herb-rich grassland communities are the worst-affected. Rooting is localised but very thorough."
Reference-
https://www.researchgate.net/profile/Neville_Walsh/publication/237372947_The_flora_of_Nungar_Plain_a_treeless_sub-alpine_frost_hollow_in_Kosciuszko_National_Park/links/53e166810cf2d79877a952b1/The-flora-of-Nungar-Plain-a-treeless-sub-alpine-frost-hollow-in-Kosciuszko-National-Park.pdf?origin=publication_detail

"Riparian and wetland habitats are attractive to feral pigs where they can cause serious habitat degradation by rooting in the soil in search of food, and can also prey on the eggs and chicks of nesting water birds in wetlands."
Reference-
https://www.parks.vic.gov.au/-/media/project/pv/main/parks/documents/management-plans/barmah-national-park-and-barmah-forest-ramsar-site-strategic-action-plan-2020-2023.pdf?la=en&hash=E130D0B2C8E9C9E22B349EC9148F9AA99ED09BAA

"Feral pigs disperse seeds of weed species, and in the process of rooting up the ground they trample vegetation and extensively disturb the soil. In addition, regular wallowing and digging of dust-beds can impact on terrestrial and aquatic systems through erosion, siltation and increased turbidity."
Reference:-

https://pestsmart.org.au/wp-content/uploads/sites/3/2020/06/Managing-vertebrate-pests-feral-pigs.pdf

https://www.environment.nsw.gov.au/Topics/Animals-and-plants/Threatened-species/NSW-Threatened-Species-Scientific-Committee/Determinations/Final-determinations/2004-2007/Predation-habitat-degradation-disease-transmission-by-feral-pigs-key-threatening-process-listing

Deer damage

Deer are in plague proportions and much of the damage purported to be wild horse damage is in fact from deer. Research methodology has meant that no distinction has been made.

"Deer degrade ecosystem quality through grazing, browsing and trampling of vegetation, ringbarking trees, as well as dispersing weed seeds and enriching nutrient levels. They also cause soil disturbance in creeks, wetlands and swamps, where they wallow in mud."

Reference:-
https://www.parks.vic.gov.au/-/media/project/pv/main/parks/documents/management-plans/barmah-national-park-and-barmah-forest-ramsar-site-strategic-action-plan-2020-2023.pdf?la=en&hash=E130D0B2C8E9C9E22B349EC9148F9AA99ED09BAA

"Over a million deer are wreaking havoc in Victoria's state forests and national parks, and instead of being managed as a serious pest, deer are oddly protected under the Wildlife Act 1975 in order to support hunting interests."

Other papers/articles relevant to damage by Deer

https://www.abc.net.au/news/2017-07-21/harrietville-project-looks-at-how-to-deal-with-deer/8732414

https://www.abc.net.au/news/2017-03-31/deer-hunters-cull-sambar-deer-in-alpine-national-park/8396774

https://www.theage.com.au/national/victoria/feral-deer-damaging-alpine-national-park-to-be-culled-in-parks-victoria-trial-20150722-gii2th.html

https://www.theland.com.au/story/3872462/deer-plague-hits-hip-pocket/

https://www.environment.nsw.gov.au/topics/animals-and-plants/threatened-species/nsw-threatened-species-scientific-committee/determinations/final-determinations/2004-2007/herbivory-and-environmental-degradation-caused-by-feral-deer-key-threatening-process-listing

Foxes and Cats damage

"Foxes and cats have already contributed to the extinction of a number of small native marsupials and are threat to many remaining threatened species"

Reference-
https://onlinelibrary.wiley.com/doi/abs/10.1111/mam.12080

Rabbits damage

https://www.environment.nsw.gov.au/topics/animals-and-plants/threatened-species/nsw-threatened-species-scientific-committee/determinations/final-determinations/2000-2003/competition-and-grazing-by-the-feral-european-rabbit-key-threatening-process-listing

Goats damage

https://www.environment.nsw.gov.au/topics/animals-and-plants/threatened-species/nsw-threatened-species-scientific-committee/determinations/final-determinations/2004-2007/competition-and-habitat-degradation-by-feral-goats-capra-hircus-key-threatening-process-listing

The Hard Hooved Story

The hard hooves story, that the Australian Alps are not adapted to the pressures of hard hooves is incorrect. The Procoptodon was a relative of the kangaroo that was 3 times the size of the current kangaroos and on each foot they had a single large claw similar in appearance to a horse's hoof. There were many other megafauna and their extinction was caused by human hunting. A new study by an international team of ecologists revealed that introduced herbivores have restored many important ecological traits. Losses of megafauna had a profound effect on ecosystems (24)(25)

Damage by Humans

Impacts to the environment by humans include building of dams, tourism, recreational vehicles, ski runs and facilities and climate change. And yet the wild horses are the scapegoats. Most ecologists and scientists confirm global warming to be the main cause of species decline and extinction.

This landscape is susceptible to a dry, warm climate and it will struggle to survive the effects of global warming. Especially the wetlands and snow patch vegetation, which are dependent on the current temperatures. These Alpine and subalpine wetlands are likely to be impacted through longer drought periods, increased temperatures and an increase in incidence and severity of wildfire. Climate change is already affecting the Australian Alps, as evidenced by a 30% reduction in snow cover. The flora and fauna is partly determined by snow presence, depth, and persistence, so climate change is expected to have substantial impacts on alpine biodiversity. The low-temperature conditions that have created the alpine and subalpine ecosystems make them highly sensitive to

climate change. Even a small increase in mean ambient temperature is likely to result in the loss of wetlands. (18)

Reduced snow cover is expected to have a detrimental effect on alpine fauna. The mountain pygmy-possum is likely to suffer a contraction in suitable habitat and local populations of broad-toothed rat are likely to be impacted by seasonal reduction in available habitat and increased predation by foxes. Climate change may also affect the breeding success of alpine frog species because the pools have the potential to dry before the tadpoles reach metamorphosis. Climate change, and the associated reduction in snow, is also likely to affect water production. (18)

Tourism and recreation in protected areas results in a range of indirect impacts on the environment, including facilitating the spread of weeds. Research found that out of 156 exotic taxa recorded in 18 vegetation surveys between 1986 and 2004, 152 were associated with tourism infrastructure. Many exotics become invasive environmental weeds so there is a need to limit both introduction of exotic propagules and disturbance to natural vegetation during the construction, maintenance and use of tourism infrastructure in protected areas. (19)

Infrastructure such as walking tracks have negative effects on vegetation including in mountain regions. In the alpine area there is a range of paved, gravel and raised steel mesh walking tracks in addition to an extensive network of informal/non-hardened tracks. A study showed that gravel and paved tracks had distinct verges of bare ground and exotic species. Regular bike and motor vehicle activity disturbance is also a serious issue. A study showed that weeds readily colonise gravel track verges and road disturbance sites. They found problems with the spread of new tracks and erosion areas caused through overuse. Sensitive plants are being trampled, such as the wetland and short alpine herbfield. (20)(21)

Tourism to the alpine area is having a range of negative environmental impacts. Direct impacts include; compaction of soil, erosion, trampling of vegetation, urine and faecal contamination of waterways, particularly glacial lakes, disturbance to wildlife, noise pollution. (21)

"Human waste contributes to increased nutrification and contamination of pristine waterways, and has negative impacts on the tourism experience. Temporary toilets at Rawson Pass have helped to deal with some of the problems of human waste, but not adequately. The withdrawal of camping from within the catchment areas of the glacial lakes has also helped, but increasing usage of other areas by campers may result in new areas being impacted."(21)

"It is estimated that the human footprint has affected 83% of the global terrestrial land surface and has degraded about 60% of the ecosystems services in the past 50 years alone. Land use and land cover (LUCC) change has been the most visible indicator of the human footprint and the most important driver of loss of biodiversity and other forms of land degradation. "(22)

It would appear that any amount of development is allowed in the Park if it is to bring in large amounts of money – like the tourism, that is being massively expanded in spite of the well-researched and recorded damage that it causes to the park (as mentioned above)! There is also of course the massive destruction of the Park by the construction of Snowy 2. But again, payment of massive amounts of money to purchase environmental credits means this gets ignored. Very contradictory.

There is a trap that has been there for several years at Carol's Creek. This trap has been set up right next to a waterway, attracting horses into the area, in spite of accusations of them damaging the

waterways! Why on earth would they do that? Especially considering that salt blocks are used to attract the horses into the traps!

Terms of reference (d), (e), (g) and (h)

The history and adequacy of NSW laws, policies and programs for the control of wild horse populations, including but not limited to the adequacy of the "Aerial shooting of feral horses (HOR 002) Standard Operating Procedures and
The animal welfare concerns associated with aerial shooting
The impact of previous aerial shooting operations such as Guy Fawkes
Availability of alternatives to aerial shooting

Management of the wild horses

Before deciding whether any management is even necessary, it is imperative to know the population size. Then also have independent (not government funded in any way) unbiased research done on the effects of ONLY horses in the environment. After that, if management is found to be necessary, the most humane methods available to manage the horse population are of course those that are NONE LETHAL.

In my opinion that is either relocation to areas that are not "sensitive ", Reserve Design used to keep sensitive areas inaccessible, or passive trapping and rehoming. With also possibly fertility control in preference to any lethal methods. Fertility control was not considered to be suitable where there are large numbers. But at this point you have no idea of the actual numbers. And fertility control is used in the USA on large herds of horses successfully.

The RSPCA, in their recent submission to the Senate Enquiry stated -

3.1 General comments

There is increasing community concern and expectations regarding the treatment of animals considered as pests. In the past, little scrutiny was given to the animal welfare impacts of control methods, however, over the past decade, there has been a greater focus on animal welfare in management plans and strategies. However, unless this translates into improved practices on the ground, progress will not be achieved. More needs to be done especially in relation to humaneness of control methods, competency of operators and research into more humane management options.

Management by shooting

Animals are recognised as sentient beings. Ground and/or aerial shooting of the horses is of course NOT a humane method to manage a population of wild horses. From the recent footage from an Australian Abattoir, it is blatantly obvious that even when contained in stocks and with "professionals", that the horses are not able to be euthanised without often several attempts!!! The suffering of these horses is unimaginable! And therefore ground or aerial shooting of loose horses humanely is an even more impossible task! They could end up having half their face blasted off!

Strict standards of animal welfare cannot be upheld with either ground shooting or aerial shooting. Horses will suffer extremely.

The Standard Operating Procedures that have been "put together " for ground shooting and aerial shooting of horses are NOT POSSIBLE TO ADHERE TO. As I am sure you are aware from photographs taken by local photographers, these SOPs have NOT been adhered to. Just as I knew they wouldn't be. It's impossible.

It is stated that -
"Any government-managed program will require that all appropriate Codes of Practice and Standard Operating Procedures are followed for all management activities."

Also, the ITRG assessment of humaneness of management techniques was based on adherence to the SOPs. As they were not adhered to, this assessment is not viable. As it was, the "assessment of mode of death" for chest shots was already MODERATE in the LEVEL OF SUFFERING assessment. The fact then that SOPs were not adhered to would increase this up to SEVERE or EXTREME LEVEL OF SUFFERING. Particularly as the horses were not even shot in the required area for a correctly placed chest shot.

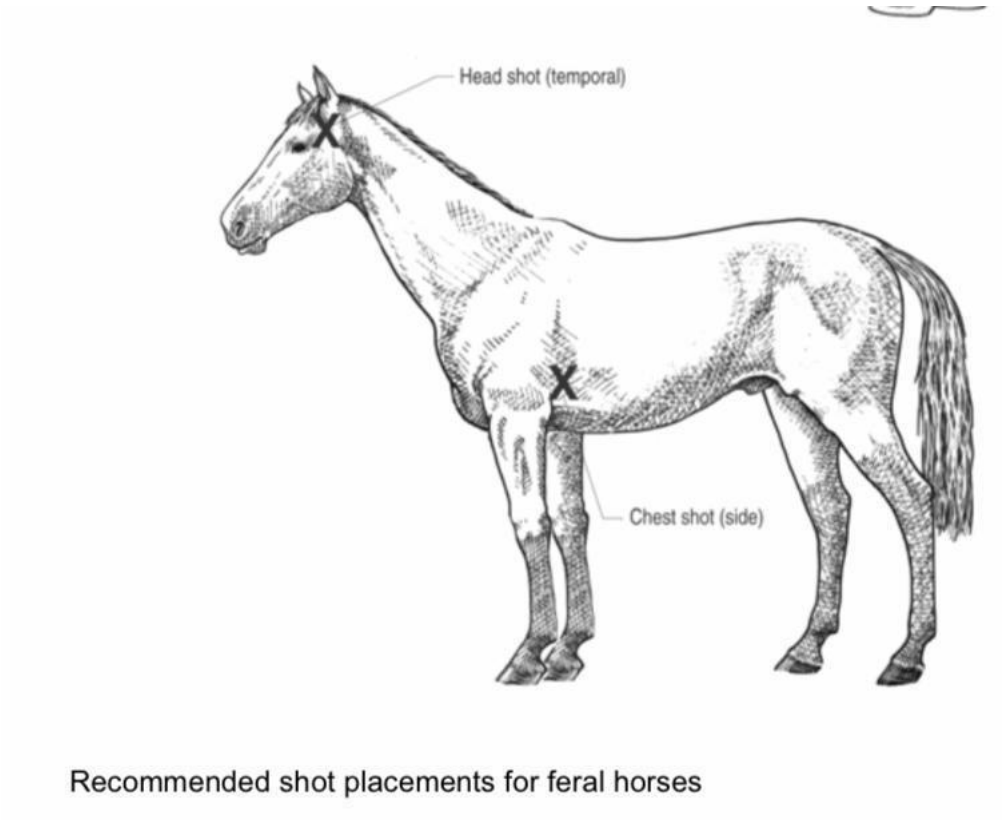
INDEPENDENT TECHNICAL REFERENCE GROUP ASSESSMENT OF HUMANENESS OF CONTROL METHODS

"Each assessment was based on a number of specific assumptions including that the method is carried out by skilled, competent and experienced operators in accordance with best practice through compliance with a SOP. Where no SOP existed, the panel used the best available information to guide the assessment. It is important to note these assumptions when considering the relative humaneness for any given method, as any deviation from them will alter the outcome of the method"
"Some methods, such as those that include the risk of free-running animals becoming injured without being able to be followed up, have the potential to result in significant adverse impacts if best practice is not followed. It is likely that those methods that do not meet the requirements of best practice will result in poorer animal welfare outcomes than indicated here." (54)

ASSESSING HUMANENESS DOCUMENT

"Chest shots do not render the animals instantaneously insensible and are likely to result in a higher incidence of wounding. Shooting at other parts of the body is unacceptable." (55)

“Chest Shot - Side view • The horse is shot from the side so that the bullet enters the chest at a point behind the foreleg, slightly above and immediately behind the elbow joint.” (55)



Recommended shot placements for feral horses

FROM SHOOTERS THEMSELVES

Reference –
https://steamcommunity.com/app/518790/discussions/0/1692669912394162665/

“I think every single one of us has taken shots (including double lung shots) and seen: Animals that have dropped immediately. Animals that have jumped, walked away and died slowly/quickly. Animals that have jumped and run varying distances and died slowly/quickly. Animals that are wounded and lie down, get back up, take a few steps, lie back down and slowly die. That covers the range of what we'd see in normal life.”

ANIMAL WELFARE FOR WILD HERBIVORE MANAGEMENT

Reference –
Hampton2017.pdf (murdoch.edu.au)

“Shooting, in particular, has been subjected to little transparent, published research (Caudell et al. 2009). Shooting is commonly used worldwide to professionally and recreationally manage wild herbivores. However, there is ongoing concern about the animal welfare outcomes of many wildlife shooting programs (Bradshaw and Bateson 2000; Brook et al. 2015). Despite this societal concern, there have been few research methods published to allow quantifiable assessment of animal welfare outcomes. Poorly quantified Type 1 animal welfare measures from shooting programs include the frequency of non-fatal wounding (Aebischer et al. 2014), the frequency of animals requiring repeat

shooting (Lewis et al. 1997), the accuracy achieved by different methods (Daoust and Caraguel 2012), and the role of manipulable variables in influencing welfare outcomes (Hampton et al. 2014). Many procedural documents (standard operating procedures (SOPs) etc.) have recently been developed for wild herbivore control (Sharp and Saunders 2004) but few cite quantified welfare data. Regulatory approaches often rely on procedural documents, rather than aspiring to welfare standards, combined with the use of qualitative assessment models (e.g. the 'Five Domains' model). However, under this approach, there is rarely any requirement for regular monitoring or quantification of welfare outcomes in operational herbivore management (Hampton et al. 2016). For example, under the current approach to wild herbivore welfare regulation in Australia, a hypothetical herbivore shooting program may generate a frequency of non-fatal wounding exceeding 50% or another hypothetical program may generate a frequency of accidental mortalities during capture exceeding 50%. As long as these programs complied with the conditions specified in their relevant procedural documents, and in the absence of AEC oversight, there would be no impediment to their continued operation. I suggest that animal welfare regulation of wild herbivore management in Australia could undergo considerable refinement. Alternative methods are commonly used to manage overabundant feral horses (e.g. mustering and translocation, trapping and euthanasia, and ground-based shooting; Nimmo and Miller 2007), however few studies have quantified animal welfare impacts for these methods. In particular, we are unaware of any empirical evidence that has been published for ground shooting despite the existence of a national model standard operating procedure in Australia (Sharp 2011b). "

THE RSPCA STATE

Reference –
https://kb.rspca.org.au/knowledge-base/rspca-policy-g1-humane-killing/

1.2	RSPCA Australia defines humane killing as when an animal is either killed instantly or rendered insensible until death ensues, without pain, suffering or distress.

They also state - "If the correct firearm and ammunition are used, a well-placed **head shot** (with the brain as the point of aim) will result in **immediate unconsciousness**. When there is adequate damage to the brain and the animal does not regain consciousness there will be no suffering. In contrast, with chest shots (which cause damage to the heart and lungs), the time to unconsciousness can range from seconds up to a few minutes. When an animal is shot in the chest, the time to loss of consciousness and the time to death will depend on which tissues are damaged and, in particular, on the rate of blood loss and hence how long it takes for the brain to have insufficient oxygen. Loss of consciousness and death is likely to be quicker when animals have been shot in the heart. A phenomenon called 'hydrostatic shock', where a pressure wave from the bullet causes damage to internal organs, can contribute to 'bringing down an animal' quicker and causing a more rapid loss of consciousness in some instances when animals are shot in the chest. However, compared with head-shot animals, those that are chest shot have a higher risk of remaining conscious and suffering for a short period prior to death – though the extent of suffering will vary depending on which tissues are damaged and the rate of blood loss. During severe bleeding they are likely to feel a sense of breathlessness and potentially some anxiety and confusion before they lose consciousness. Unfortunately, it is not uncommon for shooters to aim for the chest as it presents a larger target area compared to the head, thereby increasing the likelihood of shooting the animal, especially for less skilled shooters. To avoid suffering, shooters should be required to demonstrate competency in killing an animal instantly using a head shot."

Reference –

[What is the difference between head shooting and chest shooting? – RSPCA Knowledgebase]

In the recent submission by the RSPCA to the Senate Enquiry, they make it quite clear that they do not support chest shooting and that the only acceptable shots would be a correctly placed head shot and yet, from observations by very many local people including photographic evidence, it is absolutely clear that NONE of the horses shot have been shot with a single head shot. The shooters have clearly mostly attempted to either shoot in the chest region or just shoot to disable the horses and knock them down. Shots have been in the neck and guts and flank! None in the head and very few in the correct placement for chest shots either!

GROUND SHOOTING

The RSPCA is concerned about some views accepting incapacitating horses using a chest shot rather than aiming to achieve instant insensibility using an accurate head shot. The RSPCA believes that shooting should be planned to ensure that it is only done under ideal conditions. This includes achieving a single fatal head shot and the capacity to confirm death within a couple of minutes. This is best achieved through shooting only being conducted under ideal conditions. In addition, it is common practice to use chest shots as follow-up shots rather than a head shot. However, head shots are preferable for achieving immediate insensibility should the first shot not be fatal. Further assessment of the use of thermal imaging and shooting at night should be undertaken to investigate potential improvements in welfare outcomes.

Only shooters who are assessed to be competent are to be permitted to shoot feral horses as part of management programs.

There are currently no published studies on the welfare outcomes for ground shooting feral horses. The RSPCA recommends that investment is provided to fund studies to examine the welfare impacts of ground shooting feral horses as an urgent priority.

- **Recommendation 7: Conduct a welfare assessment of ground shooting including the use of thermal imaging and shooting at night.**

- Using highly experienced and skilled shooters and pilots.
- Ensuring that the point of aim for the first shot is always the cranium: if the first shot cannot be accurately placed then a shot is not fired.

ENSURING THAT THE POINT OF AIM FOR THE FIRST SHOT IS ALWAYS THE CRANIUM!! This is absolutely not happening at all! And yet the RSPCA have done nothing about the shootings that have taken place, although it has clearly been shown that none were shot in the cranium and very few were even shot with a correctly placed chest shot! This is unbelievable cruelty. I have written to the RSPCA personally several times regarding this and had no response!

The management plans state that SOPs will be followed :-

STANDARD OPERATING PROCEDURES

"Only head (brain) or chest (heart/lung) shots must be used. Shots to the head are preferred over chest shots as they are more likely to cause instantaneous loss of consciousness. Chest shots do not render the animals instantaneously insensible and are likely to result in a higher incidence of wounding. Shooting at other parts of the body is unacceptable." (23)

(For a group of say 10 horses, there would therefore need to be 10 shooters all perfectly positioned to deliver a perfect head shot at exactly the same time! Absolutely ludicrous! Or be able to position 2 shooters to possibly deliver 2 perfect shots at exactly the same time before the rest all gallop off. And that's if they can even get close enough to deliver even one single perfect shot!)

"Group flight response is a limiting factor for humane and instantaneous killing of horses." (23)
(EXACTLY MY POINT)

"If possible, all horses in a group should be killed before any further groups are targeted."(23)
(No chance)

"Wounded horses must be located and killed as quickly and humanely as possible with a second shot, preferably directed to the head. If left, wounded animals can escape and suffer from pain and the disabling effects of the injury." (23)
(Unless very badly injured and not able to run away there would be no chance of finding the wounded animals with maybe horrendous serious life threatening injuries!)

"Horses must NOT be shot from a moving vehicle or other moving platform, as this can significantly detract from the shooter's accuracy." (23)
(But aerial shooting is being considered)

"The objective is to fire at the closest range practicable in order to reduce the risk of non-lethal wounding. Accuracy with a single shot is important to achieve an immediate and therefore humane death. A horse should only be shot at when:
* it is stationary and can be clearly seen and recognised
* it is within the effective range of the firearm and ammunition being used
* a humane kill is probable. If in doubt, do NOT shoot.
* Ensure there are no other horses behind the target animal that could be wounded by the shot passing through the target.
* Although horses are large animals, the vital areas targeted for clean killing are small." (23)
(If all the above directives are followed, NO SHOTS would be delivered. So they would have to shoot and injure and hope they can follow up and reshoot - which is not following the SOPs)

"Shooting of individuals should stop when the flight response of the herd limits further accurate shooting." (23)
(So that's either immediately or after one shot only)

"If the stallion is shot first the mares might panic and escape with their foals." (23)
(Shouldn't be shooting anyway when mares have foals at foot)

AERIAL SHOOTING

In a study done in Australia after aerial shooting wild horses it was found
The Instant Death Rate was 63% - Absolutely not acceptable! (37)

Up to 6 bullets per horse peppered all over their bodies!(37)

In total, 35% of horses displayed bullet-wound tracts affecting the cranium, 50% the cervical spine, and 57% the thorax, whereas 3% of horses displayed bullet-wound tracts affecting the forelimbs and 8% the abdomen.(37)

Horses not rendered immediately insensible (37%)!!!! Absolutely NOT acceptable. (37)

Aerial shooting - Lets be realistic. Trained people in the slaughter houses with trained domestic horses held in stocks, are still not able to euthanise horses in a humane way successfully! So how anyone can possibly believe that it is possible to shoot a galloping horse from a moving helicopter and manage to get a shot direct in the very narrow spots to achieve instant humane euthanasia is beyond me. Hence the scenes we had from the Guy Fawkes incident and other similar incidents. And the results from the above report.

And in any case lethal control is not necessary and is cruel. These are sentient beings and they deserve life. Non-lethal control may be more expensive and more difficult, but surely no one actually wants the horses to be slaughtered when there are perfectly feasible alternatives? Let's be honest, human overpopulation is the cause of most of the world's problems, but lethal control would never be considered.

Obligations by NPWS - Kosciuszko National Park

Let's remind ourselves of the intent of the legislation-

"The new wild horse heritage plan will prioritise supporting populations in less sensitive areas and resources will be allocated to relocating brumbies to those areas. Lethal culling of brumbies will not occur."
"This bill will end the uncertainty as to whether or not brumbies will be shot: They will not be shot."
"the focus will now be on identifying areas where a population can be protected without significant environmental harm. The priority will be to move brumbies to those areas. However, trapping and rehoming will be considered if the number of brumbies increases too much, and that poses an environmental threat or safety risk."
"The new framework of managing brumbies in the Kosciuszko National Park also will involve a number of new approaches, including brumbies found in "highly-sensitive" alpine areas of the national park being relocated by authorities"
"The previous draft plan set an aggressive target for reducing the population. That would have resulted in a horrific mass slaughter of the iconic brumby—600 horses—in the Kosciusko National Park. Culling is cruel and barbaric."
"The 2016 Kosciuszko National Park Draft Wild Horse Management Plan set an aggressive target of reducing the population to 600 horses. In that draft plan, lethal methods were considered, including ground shooting. That is not an acceptable situation and this legislation will ensure that doesn't happen."

"The heritage management plan will specifically prohibit lethal culling of the brumby, aerial or otherwise, and will identify those areas in the park where brumbies can roam without causing significant environmental harm, . . . If brumbies are found in highly-sensitive alpine areas of Kosciuszko National Park, resources will be allocated towards relocation first, followed by re-homing, should population numbers grow too high." (33)(34)(35)
SO THE INTENT OF THE LEGISLATION WAS CLEAR! NO LETHAL MANAGEMENT! This was what was voted through in Parliament.

"The National Parks and Wildlife Service (NPWS) is required by law to reduce the number of horses in Kosciuszko National Park from over 14,000 to 3,000 horses."

NPWS are required by law to retain 3,000 horses in the Park! They need to therefore show irrefutable proof that there are more than 3,000 horses currently in the Park! By doing an actual headcount, just as they have every year! Not by using computer software that has given BIOLOGICALLY IMPOSSIBLE ESTIMATES. The headcount should be done with video footage and a Wild horse Advocate present - as has been suggested many times!

"To meet this legal requirement, NPWS must undertake a range of control measures, including trapping and rehoming and ground shooting."

There is NO "MUST" about using a range of control measures! They can JUST use trapping and rehoming, if even necessary AFTER THEY HAVE PROVIDED THE ABOVE PROOF that there are still over 3,000!

"The RSPCA has investigated the 11 dead horses reported in the media this week and confirmed there is no evidence of any breach of animal welfare legislation. These horses were culled (ground shooting) by NPWS in meeting its legal obligations under the plan."
"All control measures, including ground shooting, are undertaken in accordance with the highest animal welfare standards with strict requirements developed in consultation with a range of experts."

Any government-managed program will require that all appropriate Codes of Practice and Standard Operating Procedures are followed for all management activities. This is not just about the Animal Welfare Legislation. The SOPs were NOT FOLLOWED and they are there for a reason! The assessment of humaneness was done accounting for ADHERENCE to the SOPs.
The horses were not shot in the required areas.

Terms of reference - (I) any other related matters

FUNDING

Funding for the "official surveys" should be totally removed. The annual headcounts should then continue in the North Kosciuszko region.

In Kosciuszko NP, there are already MUCH LOWER NUMBERS than required to be retained by the new management plan! So save on funding by doing no further management until they are back to the required retention number of 3,000. If the numbers increase in the future to above this amount and after INDEPENDENT and unbiased STUDIES ARE DONE on the effects of wild horses, including their good effects, if it should be deemed necessary to remove some, funding should be allocated to rehomers to help rehome and reduce numbers.

No more money should be wasted on doing surveys that are producing results that are totally ludicrous and biologically impossible!

STRATEGIES TO HELP RESTORE THE ENVIRONMENT

Tackle global warming/climate change effects, which is one of the main problems as shown above. Horses are carbon sequesters!

Reduce chance of wildfires by every means possible including retaining all the currently remaining wild horses - who reduce the risk of fire as mentioned previously.

Prevent human activity damage – of which there is way more than any other animal.

Concentrate on management of the species that are really doing the damage as specified above.

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