

**Submission
No 118**

**INQUIRY INTO PROPOSED AERIAL SHOOTING OF
BRUMBIES IN KOSCIUSZKO NATIONAL PARK**

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Submission to the Inquiry into the proposed aerial shooting of brumbies in Kosciuszko National Park

NSW Legislative Council Animal Welfare Committee

To inquire into and report on the proposed aerial shooting of brumbies in Kosciuszko National Park and surrounding areas, and in particular:

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

The methodology = 'Transect Distance Sampling'

- Includes a method of accounting for target animals that were not visible to the observer
- Published and reviewed as a methodology for decades before its use in Kosciuszko
- Widely used in Australia and overseas, and for a range of animals and landscape types. The Wikipedia article on Distance Sampling lists 1400 publications reporting field use of the method and/or testing or analysis of the method. The attached bibliography highlights articles related to Distance Sampling in Australia.

In estimating horse populations in Kosciuszko national Park, the particular type of Distance Sampling used = "Helicopter Line Transect Distance Sampling (HLTDS)". HLTDS:

- Uses an aerial viewpoint, allowing observers to see further
- Allows rapid coverage of large areas. Rapidity is important to minimise the likelihood of target animals being counted twice if they move from an observed area to an adjacent area about to be observed
- Used in surveys of feral horses in the Australian Alps parks and reserves for over twenty years
- Selected for use by park management agencies reporting to both Liberal/National and Labor state and territory governments

The use of the HLTDA in Kosciuszko to survey horses:

- has been independently reviewed
- Has, on at least one occasion, produced a result that showed a decrease in feral horse population, contradicting claims that the methodology always over-counts. The 2019 survey reported, 'The number of horses in the Bago-Maragle decreased from 1,616 in 2014 to 1,113 in 2019'.¹

Most Australians are not trained in ways of estimating the size of large populations of free-ranging animals. As visitors to national parks, we may feel tempted to make statements such as 'Of course, there will be some animals present that we do not see, but even if we double or even treble the number of animals we saw, that still amounts to only x animals'. 'Doubling or trebling' could be called a 'methodology' to account of animals present by unseen; the problem is that it is actually just a guess. It does not answer the questions, why not just add 50% to account for the unseen animals,

or why not quadruple? It is not a methodology that has been published and critiqued by others. It has not been tested against populations where the total number is already known.

The use of Helicopter Line Transect Distance Sampling to estimate horse populations in Kosciuszko has been criticized by Claire Galeaⁱⁱ in a paper listing several concerns. The paper has not yet been published by any peer-reviewed journal but is available online. Social media pages report that a feral horses survey was organized by Ms Galea in northern Kosciuszko in 2023, but to my knowledge the results have not yet been published by Ms Galea. Any assessment of the relevance of Ms Galea's comments should be tested against the tick-boxes listed above e.g. does Ms Galea propose an alternative, field-tested, methodology that can cover an area the size of Northern Kosciuszko in a time frame that would prevent double-counting as horses move from one area to another. Does MS Galea's survey method account for animals not visible to the observer?

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(b) the justification for proposed aerial shooting, giving consideration to urgency and the accuracy of the estimated brumby population in Kosciuszko National Park

Justified on ecological grounds

- To reduce the likelihood of extinction of Australian native plants found in Kosciuszko National Park. NSW and federal government determinations on Kosciuszko's threatened plants document 25 plants and two plant communities threatened by feral horses.
- To reduce the likelihood of extinction of Australian native animals found in Kosciuszko National Park. NSW and federal government determinations on Kosciuszko's threatened plants document 17 animals threatened by feral horses.

Extinction is not necessarily a painless process for the animals involved. For example, grazing by feral horses is reducing the numbers of broad toothed rats in Kosciuszko National Park ⁱⁱⁱ. In winter, broad toothed rats 'den communally in nests constructed of shredded grasses beneath the snow in dense undergrowth or under logs ... Winter survival of broad-toothed rats is critically dependent on tall grasses, which the rats use to create runways between tussocks so that they can continue to forage beneath deep snow packs' ^{iv}. In other words, because of grazing by feral horses, some broad toothed rats suffer the pain of freezing winter temperatures, or of starvation. To native animals facing extinction, action to reduce threats is urgent.

Justified on water quality grounds

Many of Kosciuszko's native animals, such as the Stocky galaxias, require clear water. Feral horses cause turbidity:

"We assessed nine variables related to soil and stream stability and vegetation cover, which in turn influence ecosystem function and habitat quality. We found significant differences among horse-occupied and horse-free sites for all soil and stream stability variables assessed. For all variables assessed, the average score (and hence, condition) was worse in horse-occupied areas. The sites in poorest condition were occupied by horses. Impacts from other mammalian herbivores species appeared to be minor." - Robertson G, Wright J, Brown D, Yuen K, Tongway D 2019, An assessment of feral horse impacts on treeless drainage lines in the Australian Alps. *Ecological Management and Restoration*. 20: 21 – 30

"In summer, 99.9% of large grazer interactions with streams were horses and we estimate 130 horse interactions per kilometre of stream per day, resulting in stream turbidity increases up to 100 NTU. Long term turbidity at sites with greater riparian damage from horses was significantly greater than at control sites. Turbidity in horse affected streams peaked at 50 times the national turbidity guideline and, in summer, averaged eight times the guideline. Suspended sediment leads to a high risk of loss of aquatic diversity and impairment of ecosystem function. Linear relationships between turbidity and riparian damage suggest that any level of horse presence affects subalpine waterways" – Peter Raymond Scanes, Adam McSorley and Adrian Dickson. *Feral horses (Equus caballus) increase suspended sediment in subalpine streams. Marine and Freshwater Research*, 2021, 72, 1290–1302.

Justified on public safety grounds

NPWS has documented cases of feral horses threatening and in at least one case physically injuring a camper at Blue Waterholes. A bushwalker recently reported menacing behaviour by two feral horses while she walked the AAWT (Facebook – Australian Alps Walking Track – post by Jacquie Bowden 11th Oct 2023). Bushwalkers, of which I am one, would prefer to make a slight detour to walk around the carcass of a culled feral horse, than to be menaced by a live stallion.

As the Australian Veterinary Association notes, 'Each year in Australia many thousands of collisions occur between motor vehicles and animals, (including feral horses) with around 5% of on-road human fatalities a result of hitting animals. Feral horses have been implicated in at least two fatalities in Queensland.' ^v NSW Local Land Services also notes: 'Wild horses can also be a threat to humans and road safety. They pose a collision risk where populations stray onto roads and can cause serious

injuries for motor vehicle drivers and riders.’^{vi} As well as impacting drivers and passengers, collisions involve suffering and/or death for the horse.

Collision between feral horses and vehicles have occurred on the Snowy Mountains Highway, despite warning signs, and are possible on the Alpine Way and Barry Way. The first feral horse accident in Kosciuszko involving a human fatality could happen tomorrow. If prevention of that is not ‘urgent’, what is?

Another aspect of the public safety risks of feral horses along the highways that cross Kosciuszko NP is the likely public reaction to a collision that involved serious injury or death for a child passenger. A politician who has supported aerial shooting would be reasonably be able to state that they had supported the most effective method of population reduction. A politician who had supported, say, only re-homing and fertility control as appropriate methods, would be in a different position.

Justified by trends in population

The Animal Welfare Committee will be aware of the surveys by the NSW, Victorian and ACT governments that indicate that feral horse numbers are high and increasing in the Australian alpine national parks, and will have received submissions on the accuracy of those surveys in response to Term of Reference 1.

The Animal Welfare Committee has probably received submissions challenging the government counts; here are responses to some of the more common challenges:

Claim: The counted numbers are too high, compared with my personal observations and ‘knowledge of the park’

Response: How does your proposed method of estimating horse numbers allow for horses that are present but not visible to an observer, at the time of the survey?

Claim: The percentage increases require a reproduction rate that is physically impossible

Response: Horse numbers in a surveyed area can increase through migration of horses from another area. Horse movement depends partly on weather – early or late start to snowfalls, drought years and wetter years.

Claim: It’s more important to measure the damage than it is to measure the horse numbers.

Responses:

(a) Agreed. But it’s more expensive to measure the damage, and takes longer (e.g. years, to document the decline in numbers of a horse-impacted native species). So it’s necessary to measure both.

(b) If the horse numbers are much less than the governments’ estimates, that means that damage-per-horse is much higher.

Justified on legal grounds

The Kosciuszko Wild Horse Heritage Management Plan 2021, prepared under the Kosciuszko Wild Horse Heritage Act 2018, requires a reduction in Kosciuszko to 3000 horses by 2027. The current NSW government has been advised that the population is increasing, despite population control measures being implemented according to the Plan, and that the Plan’s target cannot be achieved without the introduction of aerial shooting.

Justified on political grounds

The target of 3000 by 2027 was set by the NSW Liberal/National government in 2021, with bipartisan support from the then Labor Opposition. The new Labor government has a responsibility to adapt the Plan's methods if the Plan's targets are not being met.

Recent political inquiries have indicated growing public support for stronger management of feral horses in the alpine national parks. Of the published submissions made to the Senate Inquiry into Impacts and management of feral horses in the Australian Alps (2023), over 80% supported stronger action to manage feral horse numbers. Although analysis of the submissions made to the NSW government inquiry on the introduction of aerial shooting is not complete at the time of writing, the Invasive Species Council reports that over 8000 submissions, made by its supporters and allied organisations, favoured the introduction of aerial shooting.

In recent state elections, a pro-brumby stance has been associated with electoral loss.

- In the NSW elections 2023, Alan Lanyon, head of the Snowy Mountain Brumby Sustainability & Management Group Inc, ran for the NSW Legislative Council and received 19 votes.
- In the same election, Nichole Overall, National Party successor to John Barilaro, was defeated by Labor's Steve Whan, and was the only National to lose her seat in that election.
- By contrast, Joe McGirr, Independent candidate for Wagga Wagga, made clear statements about the need for stronger action on reducing feral horse numbers ^{vii}, and was returned with 72% of the vote.
- In the Victorian elections 2022, Marilyn Nuske, prominent brumby advocate ^{viii}, ran for the seat of Bendigo West, and received 349 votes (0.87%, the lowest of any candidate for that seat).

(c) the status of, and threats to, endangered species in Kosciuszko National Park

The status and horse-involved threats to endangered species in Kosciuszko National Park has been comprehensively documented in the NSW Threatened Species Scientific Final Determination on *Equus caballus* (www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Animals-and-plants/Scientific-Committee/Determinations/2018/habitat-degradation-loss-feral-horses-equus-caballus-final-determination.pdf) The Final Determination's bibliography provides further sources documenting the status of and threats to endangered species in Kosciuszko NP.

Brumby advocates claim, correctly, that feral horses are not the only threat to many of the endangered species in Kosciuszko National Park. Government responses, to prevent extinctions, must however do whatever is feasible to address all threats. Corroboree frogs, for instance, are threatened by chytrid fungus, climate change, and trampling by feral horses and pigs (www.environment.nsw.gov.au/threatenedspeciesapp/profile.aspx?id=10693). It would make no sense at all to say 'we will wait till we have found a cure for chytrid fungus, and have stopped climate change, and then, if horses and pigs are still trampling the frogs, we'll look at that'. There would be no frogs left to look at.

(d) the history and adequacy of New South Wales 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 (HOR002) Standard Operating Procedure'

Feral horses in Kosciuszko NP are presently managed under the Kosciuszko Wild Horse Heritage Act 2018. The KWHH Act prioritises a damaging and abundant feral animal over native plants and animals, some of which are unfortunately well on the path to extinction. The KWHH Act is bad legislation because:

- It is conflict with other NSW legislation
 - o the National Parks and Wildlife Act 1974; the extent of this conflict is evident in the wording of the KWHH Act which requires that it “prevails to the extent of any inconsistency” with the National Parks and Wildlife Act.
 - o The Threatened Species Conservation Act 1995, which has as one of its objects ‘to eliminate or manage certain processes that threaten the survival or evolutionary development of threatened species’
 - o The Wilderness Act 1987, which has as one of its objects ‘to provide for the permanent protection of wilderness areas’; the Wild Horse Management Plan 2021 designates both the Byadbo and Pilot Wilderness Areas within Kosciuszko NP as ‘horse retention zones’ (figure 2, page 12 of the Plan)

- It has not achieved the aims of its sponsor, then Deputy-Premier John Barilaro, who said in his Second Reading Speech on 23 May 2018 that “For the first time this bill takes away the conflict [over the issue of managing the horse population]”. It clearly has not taken away the conflict.

- It is based on an assumption – that the feral horses in Kosciuszko have heritage value. This is widely contested. For example, “The Australian Government does not consider feral horses to have heritage value” - The Australian Government Department of Climate Change, Energy, the Environment and Water, submission 23 to the Senate Inquiry on Management of Feral Horses in the Australian Alps, page 14

(e) the animal welfare concerns associated with aerial shooting

Principles:

Every option from this point onwards can involve human-induced suffering of animals.

Aerial shooting, if done by unskilled operators, will cause suffering. Re-homing, if done by unskilled operators and if horses are allocated to inexperienced new owners, will cause suffering. Castration of stallions, involving capture, restraint and surgery, will cause suffering.

Any option that does not rapidly reduce feral horse numbers e.g. fertility control, or just doing nothing, will cause suffering i.e. suffering of native animals whose young are trampled by feral horses or whose winter-insulating vegetation is eaten away by horses. Since horses were introduced to the alps by human beings, our failure to manage their effect on native animals is a form of human-induced suffering.

Thus, since all methods, including do-nothing, involve human-induced suffering, there is no basis for any demand that management of Kosciuszko's horses 'must' involve no human-induced suffering. The only reasonable demand is that the suffering should be minimised.

The Animal Welfare Committee may receive submissions saying that aerial shooting inherently involves more suffering than other methods. It is not easy for anyone, including the Committee, to weigh up the details e.g. how to balance the possibility of helicopters providing unstable platforms for shooters against the possibility of helicopters allowing shooters to fire from a lesser distance than is common in ground shooting. It would be a suitable role for the Committee to avoid these kinds of detailed comparisons and to recommend broader criteria, such as maximum chase times, maximum times for confinement in a yard or a truck, maximum times between a bullet and loss of consciousness. These times should be based on advice from experts such as veterinarians, and take into account the conclusion of the previous paragraph, that human-induced suffering in management of Kosciuszko's feral horses cannot be entirely avoided, only minimized.

Policies to manage suffering of animals should be based on a measure of that suffering from the animals' point of view, rather than on human perceptions of the suffering.

No doubt the Animal Welfare Committee will receive submissions that describe horse carcasses with evidence of blood flow, and partly aborted foals. But, to measure a horse's actual suffering, the question is whether these phenomena occurred before or after the horse's loss of consciousness. My lay-person understanding is that a head shot can produce instant loss of consciousness, but that the heart can continue to beat, and blood continue to flow, for some further time. The Animal Welfare Committee may wish to seek expert advice on this, and perhaps also ask anyone who claims that evidence of blood flow equals evidence of suffering, what evidence they have that the blood flow was prior to loss of consciousness.

The aborted foals concern was directly addressed by the expert veterinarian who reviewed the implementation of the Kosciuszko Wild Horse Management Plan in 2022: "After several days of decomposition, a foetus can be expelled due to build of gas pressure in the hindgut, giving the appearance of foaling, but this occurs post-mortem. This is seen in both hindgut fermenters like horses and in ruminants, but doesn't indicate any adverse welfare outcomes." ix

The principle that animal welfare should be managed from the animal's point of view, rather than human perceptions, is also a firm basis to challenge any submissions that suggest that aerial shooting is acceptable for pigs, deer and goats, but somehow not for horses.

(f) the human safety concerns if Kosciuszko National Park is to remain open during operations

It is my understanding that NPWS proposes to close the parts of Kosciuszko NP where aerial shooting, if approved as a method, would occur. The concern that any announcement of the closures would attract brumby advocates who would try to avoid detection from the air and then put themselves in harms way, should be able to be managed by

- Use of thermal imaging equipment
- Planning that makes use of features such as locked gates, the winter snowline, and distance from management trails

As a regular bushwalker in Kosciuszko NP, I am not concerned about any risks to my safety from ground or aerial shooting in Kosciuszko National Park.

(g) the impact of previous aerial shooting operations (such as Guy Fawkes National Park) in New South Wales

The Guy Fawkes cull occurred 23 years ago. Protocols have been changed since then. By the time the Animal Welfare Committee is writing its report, it may well be that the aerial shooting of feral horses in Kosciuszko has received Ministerial approval and commenced. Data from that operation will have far more relevance to the Committee's deliberations.

If the Committee does wish to consider the impact of previous shooting operations, it should include the operations that cull deer and other large feral animals in NSW. A total of 271,959 feral animals were killed across NSW using aerial shooting, ground shooting and trapping by NPWS and LLS over the financial years from 2020/21, 2021/22 and 2022/23. Of these, 88% were through aerial shooting (239,034) compared to 6% for ground shooting (15,378) and 6% for trapping (17,547). Aerial shooting is routine for these animals. The rationale for excluding feral horses from this program is very unclear.

(h) the availability of alternatives to aerial shooting

Fertility control was explicitly ruled out in the 2021 Kosciuszko Wild Horse Management Plan. Many of the science-based submissions to the Senate Inquiry on Feral Horse Management in the Australian Alps ruled it out as ineffective.

In the Animal Justice Party's submission to the Senate Inquiry on Feral Horse Management in the Australian Alps (submission 51), the AJP notes that 'if application of fertility control could be achieved in more than 50% of the females, it ... would take more than 10–20 years before population size begins to decline'. Fertility control would certainly not meet the NSW government's current legal requirement to reach a population of 3000 by 2027.

(i) Any other matters – carcass management

Aerial shooting will produce a higher number of carcasses. As a regular walker in Kosciuszko NP, I prefer the unpleasant experience of having to walk past the occasional horse carcass, to the devastating experience of seeing trampled creeks and chopped wildflowers. I am not concerned about the effect on my drinking water of additional horse carcasses. For the last 30 years I have been treating or boiling any stream water in Kosciuszko NP because of the risk of giardia carried by foxes and pigs, and for the last several years because of the risk of feral horse dung in the streams. Aerial shooting will help provide a long term improvement in drinking water quality.

Thank you for considering this submission.

ⁱ Stuart Cairns. Feral Horses in the Australian Alps: the Analysis of Aerial Surveys Conducted in April-May, 2014 and April-May 2019. Online at theaustralianalps.files.wordpress.com/2019/12/feral-horses-in-the-australian-alps-the-analysis-of-aerial-surveys-conducted-in-2014-and-2019-cairns-s-2019.pdf Abstract point 8.

ⁱⁱ Galea C. Independent biostatistical report on the Brumby population in the Kosciuszko National Park. [Report 2023 of survey conducted by brumby advocates, circulated on social media.] Available at <https://meetourhorsemeat.com/wp-content/uploads/2023/05/Independent-Biostatistical-report-into-the-counting-of-wild-horses-Claire-Galea.pdf>

ⁱⁱⁱ Schulz M., Schroder M. and Green K. (2019). The occurrence of the Broad-toothed Rat *Mastomys fuscus* in relation to feral Horse impacts. *Ecological Management and Restoration* 20(1) 31–36, 2019. Online at

https://www.researchgate.net/publication/330731277_The_occurrence_of_the_Broad-toothed_Rat_Mastacomys_fuscus_in_relation_to_feral_Horse_impacts)

^{iv} David J Eldrige and others. *Horse Activity is Associated with Degraded Subalpine Grassland Structure and Reduced Habitat for a Threatened Rodent* in *Rangeland Ecology & Management*, Vol 72, Issue 3, May 2019, Pages 467-473. Online at <https://www.sciencedirect.com/science/article/abs/pii/S1550742418301799>

^v Australian Veterinary Association. Control of feral horses and other Equidae, 20 Jul 2023. Online at <https://www.ava.com.au/policy-advocacy/policies/wild-animals/control-of-feral-horses-and-other-equidae/>

^{vi} Local Land Services. Wild horses. Online at <https://www.lls.nsw.gov.au/help-and-advice/pest-control/vertebrate-pest-animals/wild-horses> Accessed 22 Sep 2023.

^{vii} Adriane Reardon. Independent MP Joe McGirr calls for Kosciuszko Wild Horse Heritage Act to be scrapped. ABC, 27 Feb 2023. <https://www.abc.net.au/news/2023-02-27/independent-joe-mcgirr-brumby-act-abolished-nsw-election/102019942>

^{viii} See for example, <https://www.6pr.com.au/podcast/brumby-advocate-marilyn-nuske-calls-in/>

^{ix} Evaluation of the implementation of the Kosciuszko National Park Wild Horse Heritage Management Plan (2021) 29 November 2022, www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Animals-and-plants/Pests-and-weeds/Kosciuszko-wild-horses/kosciuszko-national-park-wild-horse-heritage-plan-2021-evaluation-report.pdf, section on Ground Shooting.