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

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The Australian Veterinary Association (AVA)

The Australian Veterinary Association (AVA) is the national organisation representing veterinarians in Australia. The AVA consists of members who come from all fields within the veterinary profession. Clinical practitioners work with companion animals, horses, farm animals, such as cattle and sheep, and wildlife. Government veterinarians work with our animal health, public health and quarantine systems while other members work in industry for pharmaceutical and other commercial enterprises. We have members who work in research and teaching in a range of scientific disciplines. Veterinary students are also members of the Association.

The AVA welcomes the opportunity to provide feedback to the NSW Parliament Legislative Council Animal Welfare Committee Inquiry into the proposed aerial shooting of brumbies in Kosciuszko National Park.

Summary

Feral horses have the capacity to negatively impact the environment, the welfare and sustainability of wildlife, the economy, and social amenity. As such there must be effective methods to control populations, and the AVA supports adoption of strategic feral horse management plans by National and State Park authorities.

The control programs must be based on scientific assessment and aim to minimise the welfare impact on target animals. Furthermore, they must employ the most humane and effective methods applicable under Australian conditions that will achieve the objectives of the program, and animal welfare should not be compromised by economic factors in the choice of control program.

The Feral Horse (Brumby) management issue in the Kosciusko National Park is a sizable and complex issue. The impact of the horses on the environment and the many threatened species affected by that environmental impact is justification for control. A model for assessing the relative humaneness of pest animal control methods has been developed to enable the evaluation of methods in use, and to select the most humane methods based on scientific evidence (Sharp and McLeod, 2012). According to this model, ground shooting of feral horses is the most humane method of control, followed by aerial shooting, then mustering and trapping.

Discussion on the Terms of Reference

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

The 2022 NSW Department of Planning and Environment survey of the wild horse population in Kosciuszko National Park is a detailed population review. The AVA is supportive of the population numbers determined in that survey.

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

It is important that a transparent process is used to determine that aerial shooting is the most appropriate method for a specific location by demonstrating gains in relation to animal welfare outcomes, public support and other considerations such as practicality and effectiveness.

In terms of justification for proposed aerial shooting, the application of ethical principles described by Dubois et al (2017) is beneficial. These seven principles were agreed to by prominent scientists from several countries to assist in resolving human-animal conflict across different situations. These were referenced in the 2020 Report of the Kosciuszko Wild Horse Scientific Advisory Panel (SAP 2020) and include:

1. Modify human practices, when possible,
2. Justify the need for control,
3. Have clear and achievable outcome-based objectives,
4. Cause the least harm to animals,
5. Consider community values and scientific information,
6. Include long-term systematic management, and
7. Base control on specifics of the situation.

Justification needs to be provided as to why ground shooting is not achievable in the park. The AVA is only supportive of aerial shooting when ground shooting is not possible.

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

The Feral or Wild Horse (Brumby) management issue in the Kosciusko National Park is a sizable and complex issue. The justification for aerial control is the impact of the horses on the environment and the many threatened species affected. The most respected body of work on this impact is the NSW Threatened Species Scientific Committee and their determination of the feral horse as a threatening process (2018). Selected articles supporting their determination and published since includes: Cherubin R et al. 2019, Driscoll et al 2019; Robertson et al 2019; Scheel and Foster 2018; Schultz et al 2019) and Pulsford I et al. 2020. The AVA supports the determinations included in those works.

In addition, ongoing monitoring of these impacts must be undertaken to evaluate the efficacy of control activities. Work published by Berman et al 2023 provides an innovative approach to linking horse densities to environmental impact. In this study, environmental impact was assessed in two locations in the Australian Alps by assessing vegetation and soil disturbance

and potential causes. Horse density was assessed by measuring the density of horse faecal piles. The authors surmised that the threshold of horse impact was 250 horse faecal piles per ha. This approach helps to directly link horse density populations with environmental impact which would greatly assist in refining objectives of strategic lethal programs as well as to provide assurances to the community that interventions are warranted. In addition to assessing vegetation and soil disturbance, impacts on threatened species should also be assessed including health, reproductive capacity and population densities.

(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'

The importance of the Implementation of the 2021 Kosciuszko National Park Wild Horse Heritage Management Plan is critical in providing clear details of how management will be conducted. However, this plan would benefit significantly with the inclusion of a requirement to apply a set of parameters as part of the process in deciding on if, when and how to manage feral horses in specific locations within the Park. These could include but would not be limited to the following aspects:

- **justification in relation to setting kill numbers to address negative environmental impacts**
- **animal welfare outcomes**
- **access to enable operations to be conducted efficiently**
- **effectiveness in addressing environmental impacts**
- **assessment and consideration of environmental impacts caused by other species**
- **practicality for operations to be conducted efficiently**

Specific plans for each operation should contain these details of the decision-making process for selecting the method to be used. As part of this, aerial shooting should not be viewed as a routine method but only used where other methods have been considered as not being appropriate. There may also be situations where aerial shooting is part of an integrated approach where other method(s) are used as well concurrent operations to control other invasive species.

It is understood that the NSW National Parks and Wildlife Service (the Service) conduct on-the-ground operations according to standard operating procedures (SOPs) which they have developed, review and update. On this basis, it is anticipated that the Service will develop a SOP for aerial shooting but at this stage it is unclear as to when this is likely to occur.

It is not known if the following aspects which were recommended by the Independent Technical Reference Group (ITRG, 2015) will be incorporated into the Service's SOP for aerial shooting feral horses:

- 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.
- Shooting occurs only in open areas with minimal high-canopied vegetation (tree cover or woodland).
- Shooting in flat terrain rather than steep or undulating areas as this will result in fewer injuries and allow for easier sighting of wounded animals.
- Shooting in cooler temperatures to minimise heat stress in pursued animals.
- Small groups of horses (<10) are targeted at a time: congregation of social groups in larger mobs is avoided.

It is also essential that all operators involved in aerial shooting operations are assessed to be competent. Immediate checking of shot animals must occur with a further head and chest being delivered to ensure a fatal outcome. This is required as on-the-ground assessment to confirm death cannot be carried out due to occupational health and safety risks.

In terms of the national SOP for aerial shooting (HOR002-SOP.pdf (pestsmart.org.au), the following points are made

- Under 'Background', it states that aerial shooting is used for large scale population reductions in remote and/or inaccessible areas but not that other methods have proven to be unsuitable. Also the SOP states that aerial shooting can be a humane method, this is when immediate loss of consciousness or instant death occurs, but this is not achievable for all animals.
- Under 'Animal Welfare' Implications;
    - Equal consideration to head and chest shots is given but head shots are considered more humane than chest shots and should be the recommended point of aim.
    - The SOP should stipulate a critical limit in terms of pursuit time as this is also a significant factor in terms of animal welfare, in relation to mental state (fear, fatigue) and potential physical injury. Just stating as short as possible does not provide guidance on what is acceptable as a maximum pursuit time especially when the pursuit time is likely to be extended for non-target horses in a group as they may be chased for much longer periods. This is not mentioned in the SOP and should be due to cumulative stressors.

The use of thermal imaging is not discussed as a method to enhance animal welfare outcomes. Thermal imaging can increase the efficiency of aerial culling, and can improve animal welfare outcomes by reducing wounding rates and the escape of target animals.

(e) the animal welfare concerns associated with aerial shooting

These are addressed in the previous section, but the following points are made.

More on-the-ground assessment is required for current control methods, especially regarding use of head vs chest shots (ITRG 2015) and for aerial shooting (Hampton et al 2017) to help refine aerial shooting SOPs.

The humaneness assessment as reported by the Independent Technical Reference Group (ITRG) who reviewed the Kosciuszko National Park Wild Horse Management Plan in 2015 identified several aspects which should be considered to improve animal welfare outcomes where aerial shooting is conducted including;

- 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.
- Shooting occurs only in open areas with minimal high-canopied vegetation (tree cover or woodland).
- Shooting in flat terrain rather than steep or undulating areas as this will result in fewer injuries and allow for easier sighting of wounded animals.
- Shooting in cooler temperatures to minimise heat stress in pursued animals.
- Small groups of horses (<10) are targeted at a time: congregation of social groups in larger mobs is avoided.
- Use of thermal imaging to locate targets, reduce non-fatal wounding-only and escape of target animals

In addition, the monitoring of animal welfare and humaneness of actual culling practices as they are being undertaken would build public confidence and acceptance. This would be most effectively conducted by independent assessments of culling activity, including post-mortems of a portion of the cull and faithful recording of shots per animal and issues encountered. The use of body cameras would increase transparency.

The following key parameters for conducting animal welfare audits have been suggested (SAP 2020):

- Time to unconsciousness following gunshot
- Time to death following gunshot
- Distance moved between gunshot and loss of consciousness
- Presence of non-fatal wounding
- Helicopter chase time for individual horses in a mob – the one targeted but also remaining horses as this will be cumulative

In addition, welfare impacts on non-target horses in the mob until time of shooting and death should also be assessed.

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

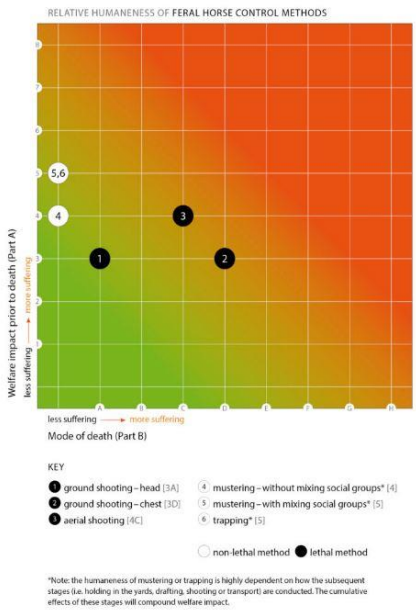
The AVA supports the operational safety notes provided on page 8 of submission 361 (NSW Government submission) of the Senate standing committee Inquiry on the impacts and management of feral horses in the Australian Alps.

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

No comment

(h) the availability of alternatives to aerial shooting
The control methods outlined in the relative humaneness matrix developed by the NSW Department of Primary Industries (Sharp and McLeod, 2012) include:

- SOP HOR001 Ground shooting of feral horses
- SOP HOR002 Aerial shooting of feral horses
- SOP HOR003 Mustering of feral horses
- SOP HOR004 Trapping of feral horses



However, it is understood that the Service has developed their own SOPs, the compliance of which are reported in the Evaluation of the Implementation of the Kosciuszko National Park Wild Horse Heritage Management Plan (the Evaluation) conducted in 2022. These include;

- NPWS H001: Ground shooting

- NPWS H002: Passive trapping
- NPWS H003: Removal for domestication (rehoming)
- NPWS H004: Removal for knackery or abattoir

Unfortunately, these are not available on the NPWS website.

For ground shooting, the inclusion of conducting this operation at night using infrared technology is an important refinement to achieve potential improvements in animal welfare outcomes. Furthermore, the primary aim must be for an accurate head shot rather than a chest shot to achieve instant death. It is noted that the relative humaneness matrix ranks chest shots as relatively less humane than head shots. The ITRG and the SAP also recommend that head shots should be the shot placement of choice (ITRG 2016; SAP 2020). An accurate head shot will achieve extensive brain damage thereby resulting in immediate loss of brain function compared to a chest shot which causes massive tissue damage and haemorrhage which may not achieve loss of consciousness for up to several minutes.

It is also essential that the Passive Trapping SOP include details of humane killing in-situ, if this is to be carried out. The use of tranquilisers or sedation is likely to achieve better welfare outcomes but this must be assessed independently.

It is critical that SOPs are assessed during actual operations as part of adaptive management to evaluate and improve methods for compliance and animal welfare outcomes. The Evaluation states that SOPs are to be reviewed annually. This must include rigorous independent animal welfare assessments during on the ground operations. Reports of these evaluations must be publicly available. It is noted that the name and credentials of the person who conducted the Evaluation was not included in the report. Future reports should contain this information and more details of the parameters which are measured. Where possible, scientific articles should be submitted for publication to peer reviewed journals to provide transparency, accountability to build public confidence and to share important information with the scientific and animal welfare community.

As with the national SOPs, the NSW NPWS SOPs should be available online to provide transparency and accountability.

The report of the Evaluation conducted in 2022, noted that two forms of control were still being assessed and developed for future implementation, and so these forms of control were not assessed as no implementation has occurred. These were aerial and/or ground mustering into yards, and reproductive control.

In terms of non-lethal methods for managing feral horses these include exclusion fencing and deterrents, and rehoming and reproductive control, with the former likely to have limited applicability due to relatively small area and the latter being limited to a relatively small number of horses being controlled. However, these approaches may be useful in specific circumstances. Although it is understood that national guidelines are being prepared for rehoming, there is no SOP for exclusion fencing. It is understood that welfare impact assessment of exclusion fencing of target and non-target species has not been conducted, despite this method being used extensively in agricultural areas to manage wild dogs etc. A study to evaluate such impacts is an important and urgent priority.

Other non-lethal options include deterrents and fertility control. It is understood that very little if any research has been undertaken in relation to the use of potential deterrents. However, some recent work in the USA has shown potential benefits of fertility control of herds

occupying large areas but does require multiple-year treatment of an immunocontraception of recruitment mares (Grams, 2022). Another study has also shown some potential for controlling reproduction in mares using an intra-uterine device but as with immunocontraception, this may have limited application to specific herds and locations (Hoopes et al 2021). The most recent review of several methods of reproductive control by Bechert et al (2022) also provides useful insights into targeted and strategic use of this option.

Although non-lethal options are unlikely to be effective for broad scale control, they may provide alternative options as part of an integrated management approach for particular situations. This is consistent with the findings from Hobbs and Hinds (2018) in relation to fertility control.

Investment in developing and refining humane non-lethal methods is encouraged as without alternative options, there will be a continued reliance on shooting, which is not sustainable in the long term.

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