

Summary of Kosciuszko National Park preliminary results from draft report.

Feral Horses in the Australian Alps National Parks: the Design and Analysis of Surveys Conducted in April-May, 2014.

- The survey was coordinated and undertaken by the Australian Alps National Parks - Feral Horse Working Group, and the report is therefore the intellectual property of the Australian Alps Liaison Committee (AALC). The draft report - *Feral Horses in the Australian Alps National Parks: the Design and Analysis of Surveys Conducted in April-May, 2014*, is still being finalised, so the full report has not been publicly released.
- In 1986, with the signing of the first Memorandum of Understanding (MOU), NSW, Victoria, ACT and Australian government national park authorities formally agreed the national parks in the Australian Alps should be managed cooperatively to protect the area's special character. Through this spirit of cooperation the Australian Alps Liaison Committee (AALC) was formed to ensure that the parks and reserves in the Alps are managed as one biogeographical entity to protect them for generations to come.
- This summary document has been provided to keep stakeholder groups and members of the community who are involved in the consultation and engagement processes surrounding the review of Kosciuszko National Park Wild Horse Management informed.
- This document is from a draft report (63pages without raw data) and is a summary relating to the Kosciuszko National Park component of the survey and interpretation of its preliminary results. Any reference to the results provided in this summary should reflect that they are from a draft report and should be presented as such and reviewed against the final report once it is released.
- Dr Stuart Cairns, a lecturer and researcher at the School of Environmental Science and Rural Studies at the University of New England was engaged to undertake the survey design and analysis of data and results and provide a report to the AALC. Dr Cairns has extensive experience in zoology, ecology and statistics, and in particular in the design and analysis of aerial surveys of free ranging wild animal populations.

- These surveys were conducted as helicopter line transect surveys in four survey blocks in the AANP.
- The surveys were designed using the automated design engine of DISTANCE 6.0. A number of design options were assessed and the most appropriate designs for each survey block selected following consultation with the staff of the NSW OEH and Parks Victoria.
- Further information on the DISTANCE 6.0 package utilised to design and conduct the survey and its analysis and the principles of applying sampling surveys for estimating population size can be obtained by referring to these websites.

<http://distancesampling.org/>

<http://onlinelibrary.wiley.com/doi/10.1111/j.1365-2664.2009.01737.x/pdf>

Kosciuszko National Park Preliminary Results Summary

- The draft report of the 2014 Australian Alps horse aerial survey has estimated about 6,000 wild horses in Kosciuszko National Park alone, an increase on the 2009, 2003 and 2001 estimates.
- For comparison, the 2009 survey estimated about 4,200 horses in Kosciuszko National Park. In the five years between the current and 2009 surveys, the NSW National Parks and Wildlife Service (NPWS) removed more than 2,000 horses, yet the population estimate has still increased during this time.
- In statistical terms, there is a 95% chance that the true population of wild horses is between 4,000 and 8,000 in Kosciuszko National Park.
- A total of 2,817 km of transect was surveyed across the Australian Alps using helicopters flown at a ground speed of 93 km-1 at a height of 61 m. Two trained observers were seated in the rear seats on either side of the aircraft. Sightings of clusters of horses were recorded into five distance classes in a 150-m wide survey strip. A total of 305 sightings were made of clusters of horses.
- A single global detection function model was fitted to the data and was used to estimate horse population densities and abundances in the four survey blocks.

- The rates of population increase were able to be estimated in relation to the results of the survey conducted in 2009. For the populations in the North Kosciuszko and Byadbo/Pilot-Victoria, these two estimates were 1.17 (17%) and 1.06 (6%) per year, respectively.
- Applying these rates of increase, the population in the North Kosciuszko block would double every 4.4 years, while the population in the Byadbo-Pilot- Victoria block would double every 12 years, assuming no major changes in environmental conditions (eg. wildfire).
- These survey results have a level of precision of 11.3% compared with 25.4% in the 2009 results, making this the most precise survey yet. Experts agree that we are unlikely to improve on this degree of precision.

Amended Table 17 (KNP Results Only). The population estimates (N) and whole-block density estimates (D) of feral horses in each of the three survey blocks pertaining to Kosciuszko National Park,(KNP) in the Australian Alps (AANP). Given with these estimates are the 95% confidence intervals and the coefficients of variation (CV_{boot}).

Survey block	Area (km ²)	N	95% confidence interval	D	95% confidence interval	CV_{boot} (%)
North Kosciuszko	1,549	4,247	2,777 – 5,893	2.74	1.79 – 3.80	18.7
Snowy Plain	123	124	13 – 293	1.01	0.11 – 2.38	65.2
Byadbo-Pilot	1,978	1,478	1,109 – 1,969	0.77	0.57 – 1.03	14.5
KNP Total:	3,650	5849	3899 - 8155			

Other species surveyed

Apart from horses, other introduced species were counted during the survey.

The most numerous species sighted during the survey other than horses were feral deer. The counts of deer in the Byadbo-Pilot-Victoria block were analysed using the CDS analysis engine of DISTANCE 6.2.

This returned an estimate of 1029 deer in KNP with a CV of 20.6% with upper and lower 95% Confidence Interval levels of 679 - 1,511 deer.