Supplementary Submission No 77a

INQUIRY INTO PROPOSED AERIAL SHOOTING OF BRUMBIES IN KOSCIUSZKO NATIONAL PARK

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Supplementary Document to the Inquiry from
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Year	Start Pop	17% inc	Removals	End Pop
2005	**1710**	291	32	1969
2006	1969	335	115	2188
2007	2188	372	131	2429
2008	2429	413	96	2746
2009	2746	467	358	2855
2010	2855	485	307	3034
2011	3034	516	658	2891
2012	2891	492	587	2796
2013	2796	475	287	2984
2014	2984	507	389	3103
2015	3103	527	182	3448
2016	3448	586	235	3799
2017	3799	646	152	4293
2018	4293	730	0	5023
2019	5023	854	99	5778
bushfires	5778		1618	4160
2020	4160	208	343	4025
2021	4025	684	444	4265
2022	4265	725	859	4131
2023	4131	702	2546	2288

Table of calculations showing probable population number in the whole of Kosciuszko National Park at the end of 2023.
Start population taken from survey done by Montague Drake on Kosciuszko NP in 2005
Generous annual increase of 17% used.
Removals as per official figures by NPWS.

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Year	start pop	17% inc	Removals	End Pop	Headcount
2005	1120	190	0	1310	
2006	1310	223	27	1506	
2007	1506	256	45	1717	
2008	1717	292	13	1996	558
2009	1996	339	251	2084	
2010	2084	354	260	2179	1460
2011	2179	370	616	1933	1262
2012	1933	329	541	1721	1312
2013	1721	293	218	1795	1646
2014	1795	305	372	1729	1637
2015	1729	294	122	1901	
2016	1901	323	235	1989	2199
2017	1989	338	152	2175	2144
2018	2175	370	0	2544	2791
2019	**2544**	433	99	2878	3110
bushfires	**2878**		705	2173	
2020	**2173**	369	343	2199	2468
2021	**2199**	374	444	2129	
2022	2129	362	722	1769	
2023	1769	301	1274	796	

Kosciuszko National Park Northern Region
17% increase
24.5% loss for fires (from their figures)

Table of calculations showing probable population number in the Northern Region of Kosciuszko National Park at the end of 2023.
Start population taken from survey done by Montague Drake on Kosciuszko NP in 2005
Generous annual increase of 17% used.
Removals as per official figures by NPWS.

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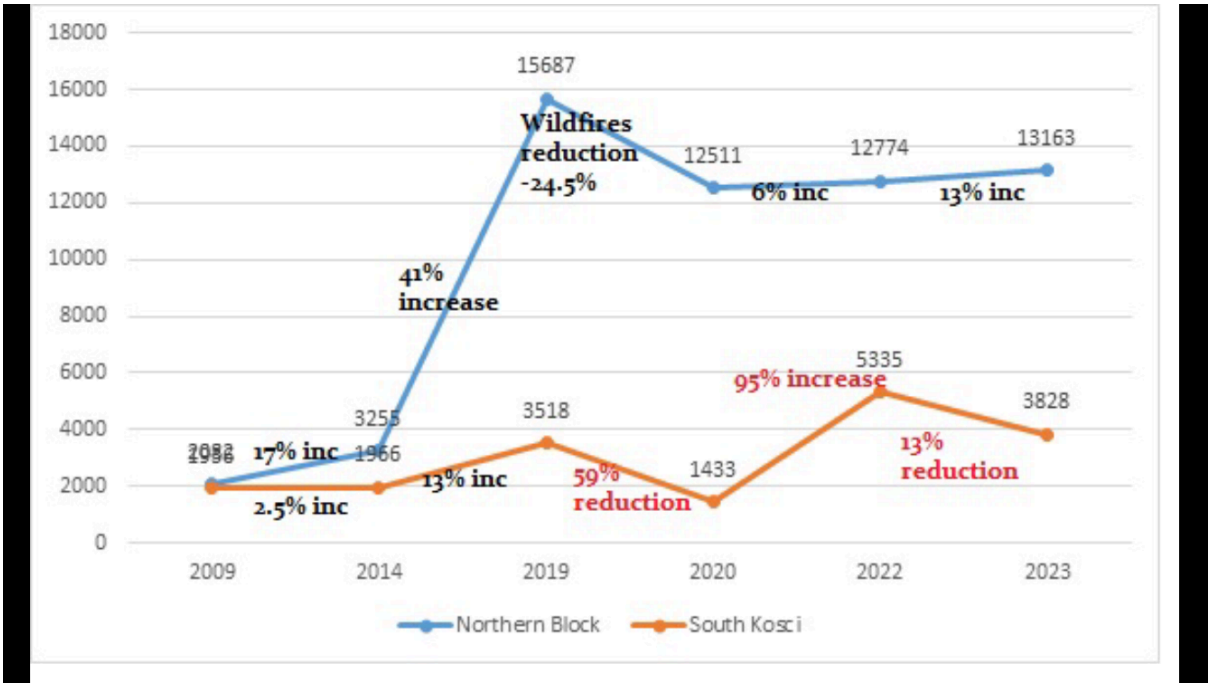
Graph showing annual purported increases and decreases from the official published surveys. Horse populations normally increase at a fairly steady rate apart from when there are “events” - for instance, the wildfires.

Note the purported 41% increase per year in the Northern Region between 2014-2019, which is BIOLOGICALLY IMPOSSIBLE for the species- as mentioned in the peer review by St Andrews University and the Scientific Advisory Panel.

Although the estimates since 2020 have shown more realistic annual increases, the numbers are already so ridiculously inflated from the purported and impossible 41%, that these estimates remain biologically impossible.

Also note the ludicrous and also biologically impossible purported increase of 95% in the Southern Block between 2020-2022.



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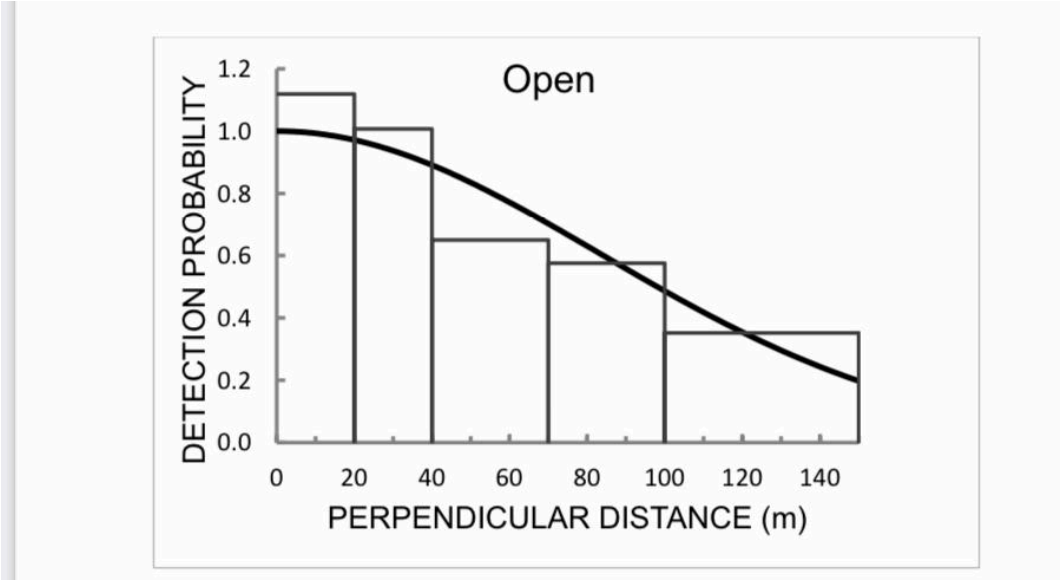
The “Distance Software” assumes that the population is constant over the whole area. This is not the case of course.

The software also assumes that even at a distance up to 150m from the helicopter, that only approx 57% of the horses are seen even on the open plains! Horses are large animals and highly visible on the open plains.

On the most recent 2023 survey, the probability of detection graph for the open plains.
Average detection estimated at approx 57% at only 70m distance!
At 120m only approx 30% detection.
Helicopter flying at 61m high



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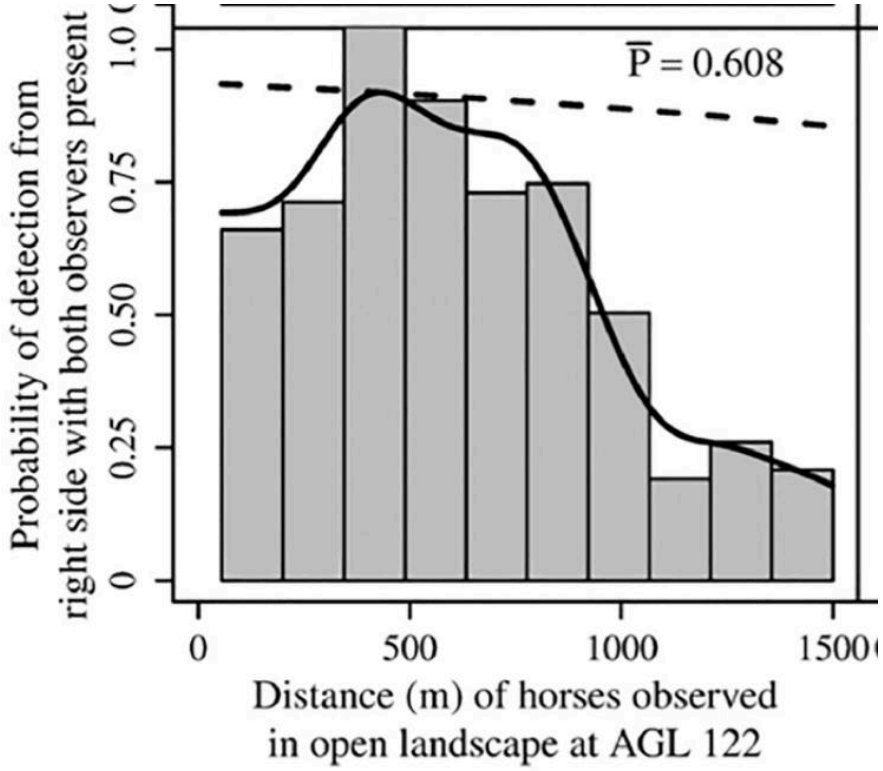
And yet - from a faster moving light plane, flying at 122m high in the USA, they managed to see and count horses up to 1500m away! Estimated 60% detection up to 1500m!
At 500m FULL DETECTION!



Reference

https://www.sciencedirect.com/science/article/pii/S1550742420301238#:~:text=We%20observed%20a%20total%20of,158%20in%20forested%20stratum%20(Fig.

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According to AI -

Answer: Yes, horses would be clearly visible at a distance of 750m on open plains in clear weather from a helicopter flying at 61m.

To calculate the visibility of an object at a certain distance, we need to consider factors such as the size of the object, atmospheric conditions, and the observer's height above the ground. In this scenario, with horses being relatively large animals and assuming clear weather conditions, they should be visible from a helicopter flying at 61m above the ground.

Given that the average height of a horse is around 1.4-1.8 meters at the shoulder, horses are quite sizable animals. At a distance of 750m, even with some perspective distortion due to the height of observation from a helicopter, horses should still be visible to the naked eye. The contrast between the horses and the open plains would aid in their visibility.

Moreover, helicopters provide an advantageous vantage point for spotting objects on the ground due to their ability to hover and manoeuvre easily. The height of 61m above ground level would provide a clear line of sight over the terrain, further enhancing the visibility of objects like horses on open plains.

In conclusion, under clear weather conditions and with horses being relatively large animals, they would indeed be clearly visible at a distance of 750m from a helicopter flying at 61m above the ground on open plains.

Top 3 Authoritative Sources:

1. National Geographic: Known for its accurate and reliable information on wildlife and nature, National Geographic provides insights into animal behavior and visibility in various environments.
2. FAA (Federal Aviation Administration):The FAA sets regulations and guidelines for aviation safety, including rules related to aerial observations and visibility from aircraft.

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3. The Horse: A reputable source for information on horses, covering topics such as horse anatomy, behavior, and visibility in different settings.