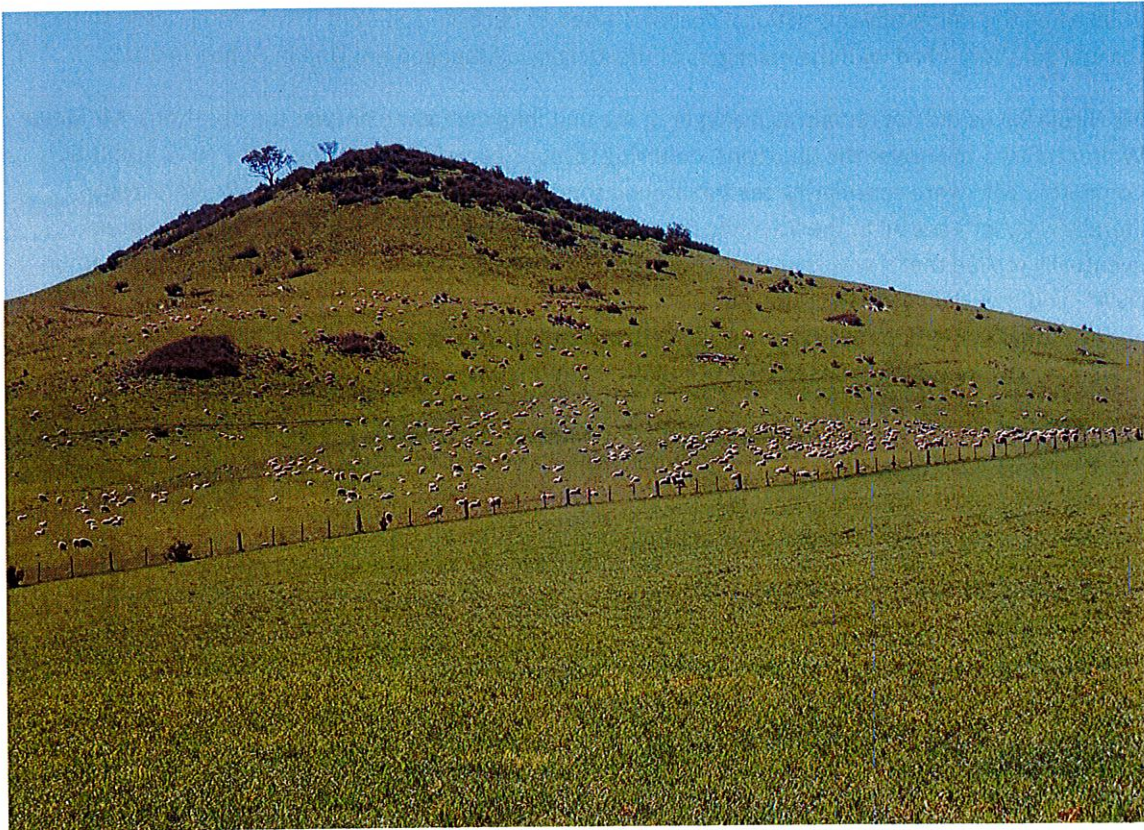


SUPPLEMENTARY NOTES to the INQUIRY into the HEALTH & WELBEING of KANGAROOS in NSW



~650 sheep on a hill near Dog Rocks, south of Bathurst

Grazing pressure from flocks of sheep equivalent to ~1,600 kangaroos routinely graze paddocks in the Bathurst district, while observed densities of kangaroos in these open landscapes often indicate that they have been almost completely eliminated, occurring at rates of only one or two kangaroos per square kilometer, if they persist at all. Historic journals / explorer accounts refer to mobs of kangaroos looking like flocks of sheep – when is the last time anyone saw a mob of 650 kangaroos?

Elsewhere, in the Rangelands for example, there are thousands of goats grazing along the roadside reserves (*pers obs*). Whilst driving in the evening and at night recently I saw, apart from the goats, only one Western Grey Kangaroo and three Red Kangaroos in the ~200km stretch from Cobar to Wilcannia, and another ~20 mixed Euros and Red Kangaroos in the next ~200km (Wilcannia to Broken Hill). On the return journey I saw precisely zero kangaroos in the 450km from Cobar to Bathurst (driving between 1800–2300hrs via Tomingley / Cumnock). Farmers like goats in the western districts, so nothing is being done about feral goat herbivory (which is listed as a KEY THREATENING PROCESS in NSW) and landscapes are being severely degraded, and kangaroos are blamed for the impact.

The kangaroos' contribution to Total Grazing Pressure (TGP) is frequently raised as a reason for reducing kangaroo populations, however it is clear that only a tiny fraction of grazing pressure being exerted under present management settings is attributable to kangaroos; more often than not kangaroos are simplistically and conveniently being scape-goated for impacts of agriculture.

In a broader sense, I have been giving the matter of kangaroo management considerable thought since 2009 when the rather obvious national decline started to become apparent to me, and I raised some of the key questions I had with the managers of the Kangaroo Management Unit in Dubbo in 2013.

Ms Nicole Payne did not remain as manager of the unit long enough to answer the questions; Mr Steve Wolter refused to answer the questions, deferring responsibility for answering to the NSW Scientific Committee who were considering the threatened species nomination at the time – Wolters' reply literally was "let's see what the Scientific Committee have to say". The NSW Scientific Committee eventually replied that it was "not their responsibility to review the commercial killing of kangaroos in NSW", and they did not answer the questions either. Instead they described the program as "rigorous and scientific"¹ and then relied on the reported (but biologically impossible) population increases in the years after the nomination was lodged ², in making their determination to reject the nomination.

Perhaps Portfolio Committee No. 7 can put these unanswered questions to the department, when the NPWS present their verbal evidence to the Committee.

1. What is the maximum population growth rate for populations of kangaroos? Is it around 9% or 10% (according to Caughley r-max 55% minus mortality, life-tables and numerous detailed field studies), or is it up to 249% per annum (according to Payne 2013), or even higher?³ If populations can fluctuate widely (by up to or over 249% per annum), can someone please explain the biological / reproductive mechanisms which would make these seemingly biologically impossible rates of population increase possible?
2. If the maximum population growth rate is only 9% or 10% during good conditions (as seems incontrovertible, when the species breeding biology is considered), how can an aspirational harvest rate of 15% or 17% be sustainable, given that this rate exceeds the potential maximum growth rate for the species? Is this not a critical flaw in the harvest model?
3. If shooting continues during drought when populations are naturally in decline (up to and over 50% decline per annum has been reported), how can shooting them during drought be sustainable?
4. If kangaroo populations are in decline (for example during drought), and if quotas are set based on the previous year's count, this will obviously mean that quotas will be over-allocated, and indeed in some years more than 20% of the population has been shot in some KMZ's as a consequence of this over-allocation. Is this not another critical flaw in the harvest model?
5. If populations are in decline, and if populations are kept at low densities by continuous shooting, the "long-term average" density will obviously decrease (this fact is unarguable). This means that the "critical threshold" at which shooting is discontinued will continually decrease, resulting in the shooting of kangaroos and the re-instatement of shooting at ever lower densities. Is this not another critical flaw in the harvest model?
6. Given the low reproductive rates of the large macropods and all of the above, how can we have any confidence in population monitoring data which shows populations immediately and miraculously rebounding at biologically impossible rates to pre-drought levels within a year or two of drought

¹ ... whilst refusing to examine the details of the how the harvest model is structured and implemented...

² ... whilst refusing to examine how those population estimates were generated.

³ ...refer to my submission which cites increases of over 400% in the official estimates.

breaking in some districts, when populations crashed between 2000 and 2010 (according to government data) by up to and over 80 or 90%? Even Grigg suggests populations only re-build "slowly" during good times.

7. Is it appropriate to use animals counted in non-shooting areas to formulate density estimates which are then applied to surrounding / farming / shooting landscapes⁴? If it is appropriate to use animals observed in national parks to generate densities applied to farmland, why did the survey design team discontinue flying over national parks and other conservation reserves in western NSW in 2018? If it is not appropriate to use animals from national parks to generate densities applied to farmland, are there any valid population estimates for western NSW for the period 1988-2017?
8. Is it legitimate science to say kangaroo monitoring surveys did not fly over national parks and state forests, when in fact they did? (refer to Cairns *et al* 2009 and 2012)
9. Is it appropriate to continue to shoot Australian wildlife with no valid scientific baseline studies or population estimates for areas in which kangaroos are shot?
10. Is it appropriate for the OEH-KMU to re-engage consultants who have failed to provide valid results for the kangaroo survey program, for decades?
11. Is it appropriate to continue to shoot kangaroos given unambiguous decline in the government data sets in many regions (until populations miraculously and spontaneously recovered, according to the 2012 data set (Payne 2013)), and given that population estimates were based on using kangaroos from within non-shooting areas (including national parks), to form a representation of populations in harvest zones across the KMZ's?
12. Is it true that clearing of forests, building dams, and getting rid of Aborigines and dingoes has made things better for kangaroos? **I can provide an easy-reading draft manuscript to Portfolio Committee No. 7 which considers these issues in some detail, and finds in the negative.**
13. Are there really more kangaroos today than there ever have been? Make sure you look out of the window of your office as you sign off on this one. Note that the NSW Scientific Committee described urbanisation and habitat loss (at least in the central tablelands and coastal regions) as having affected kangaroos, Short & Grigg (1982) described intensive agriculture as having effectively removed kangaroos from many agricultural districts (in Victoria), and Wapstra (1976) reported ~96% decline in Tasmania on account of habitat loss (clearing of forests) and hunting.

⁴ ...note that national parks were only dropped from survey in Western NSW in 2018.

CONCLUSION

In 1970 there was a gathering of stakeholders which included farmers and the kangaroo-shooting industry, government regulators, scientists and conservationists, and an alliance was struck. The government regulators told everyone from the outset that shooting of kangaroos was going to continue under a new "regulated" framework, and the scientists promised to provide the balance between the population reduction that the farmers wanted and the exploitative access that the industry wanted, and the wishes of conservationists who wanted to see kangaroos protected. Everyone clapped and cheered, except the conservationists.

Unfortunately the scientists categorically failed to deliver on their promise, and this should come as no surprise to anyone, as key recommendations when the harvest model was being developed (such as no shooting during drought) were not incorporated into the program. There should be no more counting of kangaroos under the current management settings; those who have been responsible for the design of the failed harvest model and implementation of the pseudo-scientific surveys should be removed from the management space on grounds of being incompetent. There should be no allowance for the established clique of so-called macropod "experts" to revise or make any additional attempts to fix the mess they have created. Ivashenko & Clapham (2014) commented when discussing how the Russians had been exposed as having falsified data for decades in the whaling space... *...fisheries management is interminable debate about the condition of fish stocks until all doubt is removed. And so are all the fish...* The parables with how kangaroos have been and continue to be "managed" in Australia are remarkable.

A completely new framework for kangaroo management needs to be developed, with an immediate cessation to the killing of kangaroos while valid baselines are established. Note that even if the killing of kangaroos was banned, kangaroos would continue to be killed. Processes which are operating against the species which are additive to the impacts of the industry and shooting in agricultural districts (roadkill, fence-kill, impacts of drought, flood and fire, episodic mortality etc) will continue, as will illegal killing, which may even escalate.

I hope that the Committee have found my submitted and verbal evidence helpful in understanding what has and is happening to kangaroos not just in NSW, but right across Australia.

Yours sincerely



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