

Submission
No 373

**INQUIRY INTO HEALTH AND WELLBEING OF
KANGAROOS AND OTHER MACROPODS IN NEW SOUTH
WALES**

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SUBMISSION to
Inquiry into the health and wellbeing of kangaroos and
other macropods in New South Wales
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RECOMMENDATIONS

1. The Inquiry members engage directly with Members of the Kangaroo Working Group appointed by the Government in their deliberations, recommendations, and reporting from the Inquiry.
2. The Inquiry members engage directly with all members of the Kangaroo Management Working Group both collectively and individually in their deliberations,
3. The Inquiry should reference the “Kangaroo Management Taskforce” website, the Rangeland Journal Vol. 41 (6) March 2020 special total grazing pressure edition and the soon to be released special edition of the Ecological Management and Restoration Journal in their deliberations, recommendations, and reporting.
4. The Inquiry must establish legal responsibilities and clearly articulate:
 - The integration of responsibilities of the “Owner” and “person responsible” for kangaroos, particularly for population management and the health and wellbeing of kangaroos associated with limiting feed and water resources
 - The expected outcomes of integration of kangaroos relative to inter-relationships of all other native animals and plants in accordance with the Biodiversity Conservation Act and
 - The responsibilities of Western Lands Leaseholders in managing their land, particularly relating to grazing pressure in accordance with the Crown Lands Management Act.
 - The responsibilities of the Crown for costs imposed on Western Lands Leaseholders and on other landholders for caretaking of kangaroos must be recognised and appropriately compensated (*Recommendation 4*)
5. The Biodiversity Conservation Act and any other associated Acts be amended by removing any native animal species that are over-abundant and in no risk of extinction from the protected species category, and/or amend appropriate legislation to allow adaptive management strategies for these species to minimise the impacts of over abundancies and adverse health and welfare outcomes relating to local, bio-regional, regional, and state-wide perspectives.
6. An estimation of total kangaroo numbers in all of NSW, by species, should be provided annually, or alternatively a very clear description be provided that the current process of estimating kangaroo numbers in no way represents the NSW total kangaroo population.
7. An estimation based on best available science of total kangaroo numbers, by species, should be made for the time of white colonisation, and these estimated population sizes should then be used as the bases for minimum numbers needed to maintain a sustainable population of each species
8. Special management attention be implemented as a matter of urgency to protect the habitat and populations of threatened and endangered macropod species in western NSW.
9. Research should be undertaken on threatened and endangered native animal and plant species in western NSW to develop adaptive management strategies to enhance their survival and populations, with particular consideration to the impacts, if any, created by abundant and over abundant numbers of kangaroo species.

10. Increase funding should be provided for research into adaptive management strategies for protection of threatened and endangered species of macropods.
11. The wider public must be more and better informed that there are many species of kangaroos, some consistently overpopulated compared to pre white man colonisation, other species threatened for extinction since and attributed to colonisation, and different policies and management strategies are required for each, at various geographical scale levels.
12. Policy and publicity material should recognise and articulate that quotas relate to ensuring low populations do not fall below a minimum threshold, but have no relationship to management of kangaroo populations, or their health and wellbeing, whenever the counted population is above minimum thresholds.
13. Further research should be undertaken to gain improved understandings of the benefits and limitations of exclusion fencing, including consideration of disease management.
14. Research should be undertaken on national parks where kangaroo species are prevalent to establish the impacts of kangaroos on all threatened species of native animal and plants within the parks and determine appropriate intervention strategies.
15. A policy framework must be developed that is flexible in addressing kangaroo management, including their health, wellbeing and welfare consistent with the purpose of the Biodiversity Conservation Act, namely to maintain a healthy, productive and resilient environment, conserving all biodiversity at bioregional and State scales, and maintaining diversity and quality of ecosystems. (*Attachment 2*)
16. A long-term kangaroo management strategy is necessary to moderate the boom bust cycles of population numbers of the over-abundant species, including proactive control strategies to avoid the risks of catastrophic population declines associated with unacceptable welfare responsibilities relating to starvation, thirst, disease, and roadkill.
17. Flexible, adaptive, proactive management strategies must be developed and implemented to ensure kangaroo numbers are compatible with the competing grazing pressures on the landscape at individual property levels, being the only scale that the landholders, as the de facto people responsible for caretaking of kangaroos, can operate, whilst simultaneously seeking to remain economically viable.
18. Perpetuate the established robust commercial harvesting policies for kangaroos as being the least harmful means of reducing kangaroo numbers, with regular reviews relating to inclusion/exclusion of species, and increased consideration at property level population dynamics.
19. Funds raised by government through commercial harvest should have no correlation with spending this income to pay for costs of annual counting and departmental costs for operating the commercial harvest program.
20. Funds raised by government through commercial harvest would be better spent on strategies such as minimising the massive health and well-being of kangaroos during bust cycles and on strategies to count, monitor, and protect macropod species threatened to extinction.
21. Government funding be provided to employ and pay operating costs to licenced shooters to responsibly shoot kangaroos at times and locations when the health and

wellbeing of the kangaroos are not compliant with owners' (Crown) obligations under Prevention of Cruelty to Animals Act.

(This is equivalent to not only business support funding strategies associated with any natural disaster but also the Crown, as owner of the kangaroos, accepting and acting on their animal welfare responsibilities.)

22. To accelerate public and private conservation of kangaroos, develop a strategy for compensating western lands leaseholders and other landholders for the population of kangaroos they carry relative to the carrying capacity of their land.
23. Accelerate conservation of the most extremely threatened species, by replicating established National Parks actions of maintaining breeding groups of a species within enclosed boundaries.
24. Negotiate agreements to introduce threatened species into private conservation areas inside an exclusion fenced property or group of properties that have reduced the pre-existing over-abundant population of kangaroos to a controllable level, thereby enhancing the diverse environmental biodiversity values of benefit to the introduced threatened or endangered species.

OVERARCHING COMMENTS

1. Disclosure of Personal Interest

- a. I am Chair, Western Lands Advisory Committee (WLAC), answerable to Minister for Lands. Through this role, in 2016 I initiated a decision of the WLAC to become proactive in considerations of kangaroo management in the Western Division of NSW. This evolved to a partnership with the Western Local Land Services to hold a workshop on kangaroos in 2016, resulting in the formation of the Kangaroo Management Taskforce.
- b. I have been the Independent Chair, Kangaroo Management Taskforce since its inception.
- c. I have a degree in Veterinary Science, with post graduate studies in Epidemiology, simply defined as "the study of dis-ease in populations".
- d. I have over forty years diverse experiences working across western NSW in veterinary, agricultural, natural resources, socio-economic and regional development fields, giving me not only a strong commitment to animal health and wellbeing but also a thorough appreciation for the essential need for holistic integration of nature with pre and post colonisation values and needs. (*Attachment 1*)

2. Field of Interest of Submitter.

- a. My field of interest for this submission is almost entirely focused on kangaroos across the Western Division of NSW, from a wide perspective relevant to the Biodiversity Conservation Act which requires the integration and inter-dependencies of all native animals and plants.
- b. Comments made beyond this field of interest will be made obvious through this submission.

3. Fields of Interest by the Inquiry.

- a. Whilst the Inquiry is strongly supported, it is unfortunate that the Inquiry is taking a narrow field of interest relating to the four over-abundant species of kangaroos that have no risk of becoming a threatened or extinct population, without greater recognition that the Biodiversity Conservation Act incorporated the bigger picture of overall balance and integration of all forms of biodiversity.
- b. It is unfortunate that the Inquiry is taking a narrow field of interest focused on landholder and commercial harvester activities without giving appropriate attention to the legal and moral obligations and responsibilities of the Crown as legal owner of kangaroos.
- c. Unless the Inquiry steps out of the narrow vision Terms of Reference to integrate the big picture, the findings from this potentially valuable Inquiry may be severely compromised.

4. Recommended engagement by Inquiry (*Recommendations 1, 2, 3*)

- a. Following consideration of submissions by the Inquiry, I recommend the Inquiry members engage directly with:
 - i. Members of the Kangaroo Working Group appointed by the Government
 - ii. All members of the Kangaroo Management Working Group both collectively and individually Contact:
- b. Inquiry should reference the “Kangaroo Management Taskforce” website, the 2019 special total grazing pressure edition of the Rangelands Journal and the soon to be released special edition of the Ecological Management and Restoration Journal.

5. Legal Definitions and Responsibilities

Lack of clarity of definitions and obligations for carrying out responsibilities must be fundamental to the interests of this Inquiry.

The Inquiry must establish legal responsibilities and clearly articulate:

- The integration of responsibilities of the “Owner” and “person responsible” for kangaroos, particularly for population management and the health and wellbeing of kangaroos associated with limiting feed and water resources
- The expected outcomes of integration of kangaroos relative to inter-relationships of all other native animals and plants in accordance with the Biodiversity Conservation Act and
- The responsibilities of Western Lands Leaseholders in managing their land, particularly relating to grazing pressure in accordance with the Crown Land Management Act.
- The responsibilities of the Crown for costs imposed on Western Lands Leaseholders and on other landholders for caretaking of kangaroos must be recognised and appropriately compensated (*Recommendation 4*)

a. Owner and associated responsibilities

- i. The Crown is the owner of kangaroos. (Ref: Biodiversity Conservation Act Section 2.18 and Schedule 6). (*Attachment 2*)

- ii. Responsibilities for all aspects of kangaroos, not limited to policy setting, but particularly involving ownership responsibilities for health, wellbeing, control, management and impacts on “third parties” therefore lie with the Crown.
- iii. Landholders have no ownership or official responsibilities, yet they are the only people who have to deal with the on-ground management and practical responsibilities of both healthy kangaroos and more concerningly for kangaroos suffering adverse health and wellbeing, particularly in times of drought with food and water deprivation.
- iv. During the recent extended drought and demise of millions of kangaroos across western NSW, the daily exposure to dead and dying kangaroos to rural men, women and children ultimately resulted in many reports of excessive mental stresses.
- v. In undertaking daily activities driving past starving kangaroos, and undertaking daily water runs, being confronted with and needing to remove dead and dying kangaroos bogged in the mud of dwindling water supplies became overpowering, apart from consuming their valuable time.
- vi. Despite having no legal authority, dying kangaroos had to be destroyed (shot) in the process of extracting them and their dead mates from the mud.
- vii. Carrying out this illegal gruesome task, invariably associated with the use of a firearm, beyond their official responsibility, additional to the socio-economic stresses of business survival, has potentially resulted in lasting mental health issues for these men, women and children.
- viii. It is totally irresponsible and immoral for the Crown to abrogate its legal responsibilities and impose these health and wellbeing necessities onto landholders. If a landholder similarly neglects their own domestic livestock, they are justifiably breaching the Prevention of Cruelty to animals Act.

b. Purpose of Biodiversity Conservation Act

- i. The purpose of this act is very clearly to maintain a healthy, productive, and resilient environment, conserving all biodiversity at bioregional and State scales, and maintaining diversity and quality of ecosystems.
(Attachment 2)
- ii. This purpose cannot possibly be achieved by singling out one or more animal species that are already in far greater populations in some bioregions than they ever were pre colonisation, without consideration of the remaining biodiversity species, particularly vegetation, soils and all threatened animal, reptile, plant, aquatic, and invertebrate species.
- iii. The narrow focus of the Inquiry appears to be at odds with this legislation.

c. Health and wellbeing.

- i. I have not been able to locate a relevant definition for either of these two words.
- ii. The Prevention of Cruelty to Animals Act 1979 indirectly provides explanations for health and wellbeing for all animals in NSW and

therefore directly legislates the responsibilities of the Crown as owners and person in charge of kangaroos for their health and wellbeing, and consequences for lack of effective actions to prevent cruelty such as starvation and thirst. (*Attachment 3*).

d. Overgrazing on Western Lands Leases.

- i. Western Lands leaseholders must:
 1. not overgraze their land
 2. not permit or allow their land to be overgrazed
 3. prevent overgrazing of their land and
 4. take measures to protect the land
- ii. To protect leased land the Minister (for Lands) may direct a leaseholder to erect fencing to prevent the use of the land by stock (Reference Crown Land Management Act 2016 Schedule 3, Section 23) (*Attachment 4*)
- iii. Approximately 85% of all Crown land in NSW is in the Western Division, held by Western Lands Leaseholders. This represents over 35% of NSW area, where red, western and eastern grey kangaroos comprise a high proportion of the NSW total kangaroos in the annual counts.
- iv. These leaseholders have significant responsibilities on behalf of the Crown and the public of NSW to maintain the Crown's land in accordance with the requirements of all appropriate legislation.
- v. Whilst leaseholders take responsibilities to comply with the above conditions, and can be, and have been, directed by the Minister to comply in relation to managing their domestic livestock to avoid overstocking of domestic livestock, they have no ability to comply in managing their land to prevent overgrazing by kangaroos.
- vi. At a regional level, there is a relatively consistent record that kangaroos outnumber sheep in the Western Division, yet sheep may be the only or main income source for the landholders whilst kangaroos create costs but no income to landholders. (*Attachment 6*)
- vii. On many individual properties, especially those adjacent to national parks, kangaroo grazing numbers significantly exceed sheep numbers.
- viii. Given that the primary purpose of the Crown Land Management Act is to protect the land, it is logical that if the lease holder believes it is necessary to erect a boundary fence capable of preventing overgrazing of his lease by kangaroos, then the leaseholder should do so to comply with their legal obligations, and if not carried out, the Minister may direct that this fence be erected.
- ix. Hence erection of exclusion fences to prevent overgrazing are effectively fulfilling a legal obligation.

6. Differentiation of kangaroo species

a. Species classified for Commercial Harvest

- i. The four species in this classification are the red, eastern grey and western grey kangaroos and the wallaroo.

- ii. On a state-wide bases, these four species are considered abundant and not threatened by extinction.
 - iii. These are the only species counted in the annual NSW kangaroo counts, and they are only counted on privately held that is not too heavily timbered.
- b. Abundant species in western NSW**
- i. Of the four species classified for commercial harvest across NSW, only the red, eastern grey and western grey kangaroos are present in western NSW.
 - ii. The euro (*Macropos robustus erubescens*) is present in large numbers across parts of western NSW, with some estimates being they may account for 10% of the total population of kangaroos in this region. Landholders commonly report that in certain areas they are in greater numbers than all other kangaroo species.
 - iii. There are also reports that high numbers of euros, combined with the other listed species, are threatening endangered kangaroo species, especially yellow footed rock wallabies.
 - iv. There is no logic in any native species being referred to as “protected” when it is in far greater population numbers than occurred pre colonisation, in no threat of extinction, and that suffers devastating animal welfare outcomes of death by starvation, thirst, disease and roadkill as a consequence of post colonisation developments combined with seasonal conditions.
 - 1. It is recommended that the Biodiversity Conservation Act and any other associated Acts be amended by removing animal species that are over-abundant and in no risk of extinction from the protected species category, and/or amend appropriate legislation to allow adaptive management strategies for these species to minimise the impacts of over abundancies and adverse health and welfare outcomes.
(Recommendation 5)
 - v. The only kangaroos currently counted, and referred to as the NSW kangaroo population, are the four species listed for commercial harvest that are sighted on privately held land within the Commercial harvest zone.
 - 1. An estimation of total kangaroo numbers in NSW, by species, should be provided annually, or alternatively a very clear description be provided that the current process of estimating kangaroo numbers in no way represents the NSW total kangaroo population. *(Recommendation 6)*
 - vi. An estimation based on best available science of total kangaroo numbers in all of NSW, by species, should be made at time of white colonisation, and these estimated population sizes should then be used as the bases for minimum numbers needed to maintain a sustainable population of each species. *(Recommendation 7)*
- c. Comparative scale of abundancy of kangaroos in western NSW.**
- i. Total kangaroo numbers in the western region approximate the human population in Sydney *(Attachment 5)*

- ii. Counted kangaroo numbers in the western region exceed annual declarations of sheep numbers in the same region. (*Attachment 6*)
- d. **Threatened species in western NSW**
 - i. Small colonies of yellow-footed rock wallabies, swamp wallabies and brush-tailed rock wallabies may be found in the western region.
 - ii. Special management attention is urgently needed to protect the habitat and populations of these species. (*Recommendation 8*)
 - iii. Research should be undertaken on threatened and endangered species to develop adaptive management strategies to enhance their survival and populations (*Recommendation 9*)
 - iv. Increase funding should be provided for research into adaptive management strategies for protection of threatened and endangered species of macropods. (*Recommendation 10*)
- e. **Community understanding of variations between macropod species.**
 - i. The common view amongst many Australians and overseas people is that all kangaroos are the same single species and therefore if they cannot see them readily they must be at risk of extinction.
 - ii. My understanding is that there are, or have been, approximately 50 species of marsupial mammals of the Super Family Macropodoidea in Australia, most of which have declined in population or even become extinct, whilst a few species have proliferated though changes introduced since colonisation.
 - iii. This lack of appreciation of the differences must be better communicated to allow for improved ability to develop responsible and effective policy and management strategies for kangaroos. (*Recommendation 11*)

RESPONSES TO RELEVANT TERMS OF REFERENCE

ToR 1 (a) Health and wellbeing indicators at various levels, including risk of localised extinction

Response

- Historical and long-term health and wellbeing indicators of kangaroos are directly linked to the consequences of rainfall and seasonal conditions.
- Favourable seasonal conditions result in healthy kangaroos and rapid increase in kangaroo population numbers (Boom component of population dynamics cycle).
- In this context, for the Western Division, I refer to the four most abundant species, being western and eastern grey kangaroos, red kangaroos and euros.
- Conversely, widespread unfavourable seasonal conditions rapidly lead to starvation and death of significant numbers of kangaroos of all ages (Bust component of population dynamics cycle).
- Isolated locations of rainfall events during otherwise unfavourable seasonal conditions results in mass migration of kangaroos, especially red kangaroos, to localised areas of pasture growth, resulting in significant overgrazing and short-term reprieve for favourable health at the expense of the overgrazing.
- Unlike the management practices of western lands leaseholders who are accustomed to transporting their livestock away from a declining feed and

water source, thereby avoiding livestock deaths from starvation and/or thirst, for kangaroos on the same leases the indicator is the number that suffer and die. Over the recent several years of drought, this has been many millions!

- High population numbers of the four abundant species arguably pose the greatest risk for extinction of threatened macropod species in the region, namely yellow-footed rock wallabies, swamp wallabies and brush-tailed rock wallabies, through competition for shelter, food and water.

ToR 1 (b) Accuracy of counting

Response

- The established counting process is adequate in providing comparative indicators of numbers and trends within the commercial zone region of NSW.
- It is understood that the current counting process does not count kangaroos in national parks, nature reserves and forest reserves, yet these areas may represent at least 10% of the total area.
- Additionally, it is understood that the current process does not count kangaroos in heavily timbered areas on private lands.
- Thus, given that kangaroos do not have to compete with other herbivores for feed or shelter in national parks and forests, and that heavily timbered areas provide ideal shelter for kangaroos during the day, when counting occurs, it is logical to conclude that the current counting is a gross underestimation of actual kangaroo numbers within the Commercial kangaroo harvest zones.
- It is also logical that the current counting process would be very limiting in counting half-grown joeys kangaroos still using the pouch for shelter, such as when an aircraft may be flying overhead undertaking a count.
- On a state-wide basis, there is no known counting of kangaroos outside the commercial zones. Despite this, the number of kangaroos consistently stated as “being present at last count” in either NSW or Australia wide only refers to those counted on privately managed lands (eg excluding national parks and forests) where commercial harvesting is approved, again providing a gross under-estimate of actual kangaroo populations not only in NSW but also across Australia. (*Recommendation 6*)
- The gross number of kangaroos consistently referred to through the media and with policy discussions, debates, inquiries, etc provides extremely skewed messages and bases for policy decisions. The four of five abundant species, all in far greater prevalence than what existed at the time of white man colonisation, mask the many endangered or threatened to extinction species. (*Recommendation 11*)

ToR 1 (c) Threats

Response relating to Western Division pastoral region

- As stated above, the four abundant species are potentially the greatest threat to endangered species of macropods in western NSW.
- On average, kangaroos consume about 45% of the forage produced on Australia’s southern rangelands (Hacker, Sinclair and Pahl 2019b)

- Further, the overgrazing by these four species poses biodiversity threats to an un-investigated number of all other native animals, reptiles and plants across this semi-arid region. (*Recommendation 9*)
- With climate change predictions being an increase in short periods of high rainfall events and long periods of extended drought conditions, the current boom bust population cycle of kangaroos can be expected to be exacerbated.
 - Hence we can expect increased frequency of boom/bust cycles and increased adverse health and wellbeing, including starvation and thirst deprivation of kangaroos through the bust phases unless practical kangaroo population management strategies are implemented.
- Diversion of surface waters and access to underground waters across the landscape has been the saviour in ensuring kangaroo numbers are constantly more prevalent than pre-colonisation.
- It is rare for kangaroos to suffer from depletion of diverted surface water, or access to water from underground sources, before the livestock in the same paddocks have been managed by intervention through relocation.
- Changes to use of river water throughout the Murray Darling Basin will result in significantly more frequent and longer periods of zero river flows along the Darling River, thereby impacting on water access for all humans, native and domestic animals, reptiles, birds, fish, other water invertebrates and vegetation traditionally dependent on this water source.
- Bushfires in the Western Division are only likely to occur following an extended period of favourable seasonal conditions, by which time the boom phase of kangaroo population cycle has occurred, and potentially moving towards the bust phase. Under such conditions, the number of kangaroos that may be affected by any bushfire will be minimal, especially compared to the number doomed to suffer and die with an imminent bust cycle.
- Exclusion fencing
 - Use of exclusion fencing is totally consistent with a Western Lands Leaseholder's legal obligations to protect and prevent overgrazing of the leased land, thereby avoiding the possibility that the Minister responsible for Lands may direct that such fencing action take place. (*Attachment 4*)
 - Whilst an exclusion fence may block movement of many animals, it also results in creating increased habitat, food, and water conditions for many other species of animals, reptiles, birds, and vegetation.
 - An exclusion fence is not necessarily synonymous with there being no kangaroos on the inside, nor no ability for gates to allow controlled movements of kangaroos or any other animals in either direction through the fence.
 - Recent research observations have indicated that kangaroos within exclusion fences may be healthier than those outside, possibly due to improved access to sustainable grazing and exclusion from diseases. This preliminary observation requires further research. (*Recommendation 13*)

- Construction of an exclusion fence by one or several landholder(s) to control wild dog and/or kangaroo populations, creates associated positive and negative implications for all biodiversity.
 - There are many examples of threatened animal and plant species which will benefit from the exclusion fence controlling overabundant kangaroo species.
- Governments have already established precedents of constructing hundreds of kilometres of exclusion fences along highways and road corridors, preventing migration of kangaroos, whether they be already threatened species, or over-abundant species.
- National Parks management strategies
 - Contrary to common belief, National Parks are not Crown Land.
 - By contrast to exclusion fencing, the established practice of National Parks management of decommissioning all man-made watering points on National Parks are also associated with both positive and negative implications for all biodiversity. In this scenario, the deprivation of water to force migration of over-prevalent kangaroo species is likely to have more significant negative impacts on the many threatened animal, reptile, marsupial and bird species, and on the vegetation cover and soil erosion within the park.
 - National Parks actions of decommissioning watering points within the parks creates significantly increased overgrazing and over consumption of precious water reserves on neighbouring properties. The abundant numbers of kangaroos shelter by day in the national parks, and graze and drink by night on neighbouring properties.
 - National Parks do not contribute to the establishment and maintenance of boundary fences, despite the fundamental principles and purposes of the Boundary Fences Act.
 - It is estimated that there are over 4,000 Km of boundary borders between national parks and their neighbours across the Western Division.
 - Whilst the neighbours must maintain these fences to a standard to prevent their domestic livestock from entering the parks and therefore impacting on the biodiversity within the park (including risk of overgrazing vegetation), there is no reciprocal responsibilities of national parks preventing their native animals from entering the neighbouring properties and impacting on the biodiversity, particularly by overgrazing.
 - National Parks already construct exclusion fences within some parks to protect one or more threatened species.
 - Research should be undertaken on national parks where kangaroo species are prevalent to establish the impacts of kangaroos on all threatened species of animal and plants within the parks and determine appropriate intervention strategies. (*Recommendation 14*)

ToR 1 (d) Current Government policies and programs for kangaroo management

Response

- The NSW Government currently does not have any effective policies or programs for kangaroo management, or genuine management of kangaroos.
- Quotas
 - The method for setting quotas uses an ambit percentage, based on estimated reproductive replacement rate, of a previous count, irrespective of the stage in the population boom bust cycle of already recognised over abundant populations of species that will never be threatened by extinction through the commercial harvest process.
 - Quotas relate to ensuring low populations do not fall below a minimum threshold, but have no relationship to management of kangaroo populations, or their health and wellbeing, whenever the counted population is above minimum thresholds.
 - This lack of relevance of quotas in managing kangaroos once above minimum threshold numbers should be recognised and articulated.
(Recommendation 12)
 - The government acknowledges that four species are over-abundant and not threatened for extinction, in allowing them to be harvested commercially.
 - Hence there is little logic in classifying these species as protected.
(Recommendation 5)
 - The baseline to ensure any of the over-abundant four species do not become threatened by commercial harvest should be set based on an estimated population for each of the four kangaroo species for each of the localised biographic regions that occurred prior to white man colonisation.
(Recommendation 7)
 - The facts that full quotas are virtually never taken, and historic statistics clearly demonstrate that there is no correlation between commercial kangaroo take and population dynamics, clearly highlight the irrelevance of the current quota system with respect to kangaroo management.
 - There do not appear to be any well-articulated and implemented management strategies to address survival of the many threatened and endangered kangaroo species.
 - I acknowledge that having a quota process has some merit for propaganda purposes.
- Management of licences
 - This issue is not about managing kangaroos. Rather, it is about managing people and accountability of statistics.
- Current temporary policies and processes.
 - These policies and programs currently are band aid approaches applicable too late for the genuine health and wellbeing of kangaroos.
 - Whilst they are relevant and appreciated, they do not address the pre-determining conditions that adversely impact on the health and welfare of kangaroos.
 - There is scope for improved programs and processes to be developed that will be far more preventative in protecting the health and wellbeing of

kangaroos through interventions during both the boom phase and peak of the boom bust population cycles. (*Recommendations 15 and 16*).

- Recommendations for Necessary policies and programs.
 - The overriding necessity is to have a policy framework that is flexible in addressing kangaroo management, including their health, wellbeing and welfare consistent with the purpose of the Biodiversity Conservation Act, namely to maintain a healthy, productive and resilient environment, conserving biodiversity at bioregional and State scales, and maintaining diversity and quality of ecosystems. (*Attachment 2*) (*Recommendation 15*)
 - A long-term kangaroo management strategy is necessary to moderate the boom bust cycles of population numbers of the over-abundant species, including proactive control strategies to avoid the risks of catastrophic population declines through unacceptable welfare responsibilities relating to starvation, thirst, disease, and roadkill. (*Recommendation 16*)
 - Flexible, adaptive, proactive management strategies must be developed and implemented to ensure kangaroo numbers are compatible with the competing grazing pressures on the landscape at individual property levels, being the only scale that the landholders, as the de facto people responsible for caretaking of kangaroos, can operate, whilst simultaneously seeking to remain economically viable. (*Recommendation 17*)
 - Perpetuate the established robust commercial harvesting policies for kangaroos as being the least harmful means of reducing kangaroo numbers, with regular reviews relating to inclusion/exclusion of species, and increased consideration at property level population dynamics. (*Recommendation 18*)
 - Funds raised by government through commercial harvest should have no correlation with spending this income to pay for costs of annual counting and departmental costs for operating the commercial harvest program. (*Recommendation 19*)
 - These funds would be better spent on strategies such as minimising the massive health and well-being of kangaroos during bust cycles and on strategies to count, monitor, and protect macropod species threatened to extinction. (*Recommendation 20*)
 - Government funding be provided to employ and pay operating costs to licenced shooters to responsibly shoot kangaroos at times and locations when the health and wellbeing of the kangaroos are not compliant with owners' (Crown) obligations under Prevention of Cruelty to Animals Act.
 - This is equivalent to not only business support funding strategies associated with any natural disaster but also the Crown, as owner of the kangaroos, accepting and acting on their animal welfare responsibilities. (*Recommendation 21*)
- **ToR 1 (e) Current policies and programs regarding joeys**
 - Response**
 - From my understanding, current regulatory policies regarding joeys have been developed, supported, and adopted to satisfy the need.

- Whilst these deaths are inevitable, they should not be taken out of context compared to the far greater number of deaths of joeys through starvation, thirst, and neglect.
- Associated with the millions of adult kangaroo deaths recorded by population counts as presumably death from starvation, thirst, disease, and roadkill, logically there are simultaneously at least equivalent numbers of joeys dying at the same time as the number of adult females dying.
 - These joeys also would be dying from the same causes, many of which being rejected by their mother, whilst many others dying following their mother's death.
 - The Crown as owner of these animals should not be proud of the health and welfare care of these animals.
 - By contrast, in the identical environment, owners of domestic livestock take management decisions not to join their females, to supplementary feed or relocate both mothers and their young.
- The natural instincts of a female kangaroo under immediate threat of her life, such as being chased by a dingo or wild dog, will sacrifice her joey by throwing it out of her pouch for her own potential survival. Again, this natural circumstance does not offer an attractive health and welfare picture.

ToR 1 (f) Regulatory and compliance mechanisms

Response

- Whilst this ToR relates specifically to ensuring that commercial and non-commercial killing of kangaroos is undertaken according to the Biodiversity Conservation Act, there should be no reason why the ToR should not be expanded to compliance by all interest groups in accordance with this Act.
 - In this regard, the harm imposed on kangaroos through neglect by their official owner resulting in death by starvation and thirst must be questioned relating to compliance with the Biodiversity Conservation Act (Ref Section 2.1) (*Attachment 2*) and with the Prevention of Cruelty to Animals Act (*Attachment 3*)
- I have no direct experience to comment further on this ToR, other than to state that I have been informed that all appropriate and adequate regulatory and compliance mechanisms are in place.

ToR 1 (g) Impact of commercial and non-commercial killing of kangaroos, including difficulty of establishing numbers since removal of drop tags.

Response

- Numerous graphs have been publicly available in scientific papers highlighting the relatively insignificant impact of commercial and non-commercial take of kangaroos compared to the current population and population changes.
- Despite removal of the need for drop tags, landholders remain obligated to seek approval to reduce kangaroos, are provided with a quota, and must report their actions.
- There is far greater difficulty in determining the greater numbers of kangaroos succumbing to a protracted cruel death by starvation, thirst or

disease despite any intervention by their official owner, or the number of kangaroos killed or maimed resulting in spontaneous or delayed death through road collisions.

ToR 1 (h) Measures to provide incentives and accelerate public and private conservation of kangaroos.

Response

- The most glaringly obvious incentive to accelerate public and private conservation of kangaroos is to develop a strategy for compensating Western Lands Leaseholders and other landholders for the population of kangaroos they carry relative to the carrying capacity of their land.
 - Such a strategy would be the first time any leaseholder or other landholder, as caretaker and de facto person who accepts responsibility for kangaroos at the expense of their commercial enterprise, will receive any compensation or recognition for their contributions to the Crown, as the official owner.
 - This strategy is identical to the long-established practice of a leaseholder or other landholder accepting another person's livestock on agistment, with appropriate business agreements. (*Recommendation 22*)
- For the most extremely threatened species, the obvious logical measure to accelerate their conservation is to replicate established National Parks actions of maintaining breeding groups of other species within enclosed boundaries.
 - As referenced above, over-abundant kangaroo species may pose the greatest risk to threatened populations, such as yellow footed rock wallabies, as is occurring in some locations in the Western Division. (*Recommendation 23*)
- Negotiate agreements to introduce threatened species into private conservation areas inside an exclusion fenced property or group of properties that have reduced the pre-existing over-abundant population of kangaroos to a controllable level, thereby enhancing the diverse environmental biodiversity values of benefit to the introduced threatened or endangered species. (*Recommendation 24*).

ATTACHMENTS

Attachment 1

Extract from a paper I presented to the Western Division Shires Association Annual Conference in 1999 highlighting the essential integration and inter-relationships of biodiversity.

"If we can reconcile our attitudes to our environment, including our natural resources, climate, and sociological state, if we can accept a role of steward and partner, and depart from the role of conqueror or self-interest, if we can recognize the view that man and nature are inseparable parts of a unified whole – and that production and ecology are mutual components of nature – then the Western Division of NSW will continue to be a leading example of responsible environmental balance, unmatched by the rapidly expanding urban spread, where our city based colleagues live in largely artificial, unsustainable, highly modified environments which were once also environmental havens".

Attachment 2

BIODIVERSITY CONSERVATION ACT 2016 NO 63

The following are relevant extracts from this Act:

1.3 Purpose of Act

The purpose of this Act is to maintain a healthy, productive and resilient environment for the greatest well-being of the community, now and into the future, consistent with the principles of ecologically sustainable development (described in section 6(2) of the *Protection of the Environment Administration Act 1991*), and in particular—

- (a) to conserve biodiversity at bioregional and State scales, and
- (b) to maintain the diversity and quality of ecosystems and enhance their capacity to adapt to change and provide for the needs of future generations, and
- (f) to assess the extinction risk of species and ecological communities, and identify key threatening processes, through an independent and rigorous scientific process, and
- (g) to regulate human interactions with wildlife by applying a risk-based approach, and
- (h) to support conservation and threat abatement action to slow the rate of biodiversity loss and conserve threatened species and ecological communities in nature, and
- (j) to encourage and enable landholders to enter into voluntary agreements over land for the conservation of biodiversity, and
- (m) to establish market-based conservation mechanisms through which the biodiversity impacts of development and land use change can be offset at landscape and site scales, and

1.5 Biodiversity and biodiversity values for purposes of Act

- (1) For the purposes of this Act, **biodiversity** is the variety of living animal and plant life from all sources and includes diversity within and between species and diversity of ecosystems.
- (2) For the purposes of this Act, **biodiversity values** are the following biodiversity values—
 - (a) vegetation integrity—being the degree to which the composition, structure and function of vegetation at a particular site and the surrounding landscape has been altered from a near natural state,
 - (b) habitat suitability—being the degree to which the habitat needs of threatened species are present at a particular site

2.1 Harming animals

- (1) A person who harms or attempts to harm—
 - (a) an animal that is of a threatened species, or
 - (b) an animal that is part of a threatened ecological community, or
 - (c) a protected animal,is guilty of an offence.

2.18 Protected animals (unless excluded) to be property of the Crown

- (1) In this section—
excluded protected animal means—
 - (a) a protected animal that is, at the time of birth, in the lawful possession of any person other than the Crown, or
 - (d) a protected animal of a class prescribed by the regulations for the purposes of this definition.

Protected animal includes an animal of (or part of) a threatened species or threatened ecological community.

- (2) A protected animal (other than an excluded protected animal) is, until lawfully captured or killed, deemed to be the property of the Crown.

Attachment 3

PREVENTION OF CRUELTY TO ANIMALS ACT 1997 NO 200

The following are relevant extracts from this Act:

3 Objects of Act

The objects of this Act are—

- (a) to prevent cruelty to animals, and
- (b) to promote the welfare of animals by requiring a person in charge of an animal—
 - (i) to provide care for the animal, and
 - (ii) to treat the animal in a humane manner, and
 - (iii) to ensure the welfare of the animal.

5 Cruelty to animals

- (1) A person shall not commit an act of cruelty upon an animal.
- (2) A person in charge of an animal shall not authorise the commission of an act of cruelty upon the animal.
- (3) A person in charge of an animal shall not fail at any time—
 - (a) to exercise reasonable care, control or supervision of an animal to prevent the commission of an act of cruelty upon the animal,
 - (b) where pain is being inflicted upon the animal, to take such reasonable steps as are necessary to alleviate the pain

8 Animals to be provided with food, drink or shelter

A person in charge of an animal shall not fail to provide the animal with food, drink or shelter, or any of them, which, in each case, is proper and sufficient and which it is reasonably practicable in the circumstances for the person to provide.

Attachment 4

CROWN LAND MANAGEMENT ACT 2016

The following are relevant extracts from this Act:

Schedule 3, Section 23

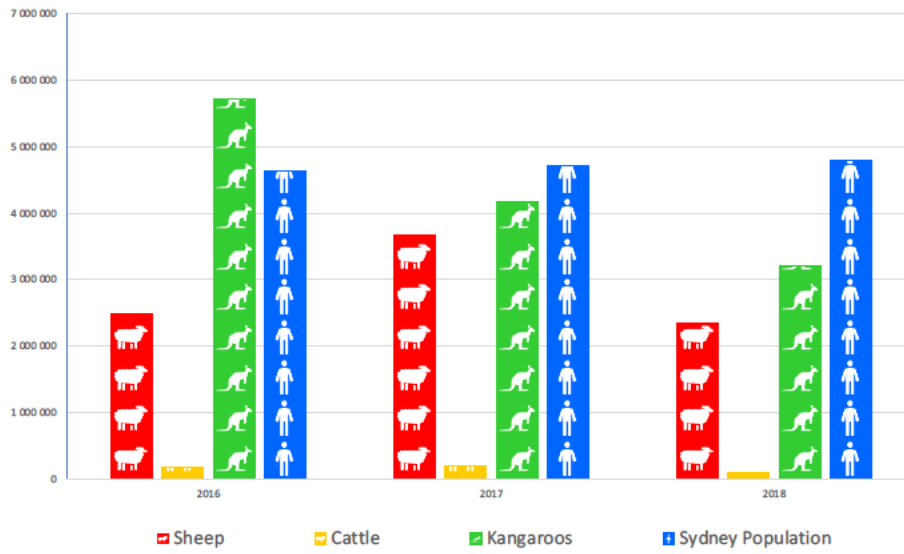
23 Protective measures

- (1) The holder of the lease must take measures that the Minister may direct to protect the leased land and, without limitation, the Minister may direct the holder to do any one or more of the following—
 - (a) to prevent the use by stock of any part of the leased land for the periods that the Minister considers necessary and to erect fencing for that purpose,

- (b) to prevent the overgrazing of the land,
 - (c) to prevent any part of the leased land being used for agricultural practices of the types and for the periods that the Minister considers necessary,
 - (d) to take measures to protect the land (including measures to prevent soil erosion or other damage to the land) as the Soil Conservation Commissioner under the *Soil Conservation Act 1938* may recommend.
- (2) The holder of the lease must not overgraze the leased land (or permit or allow it to be overgrazed). For this purpose, a decision of the Minister as to what constitutes overgrazing is final.
- (d) to take measures to protect the land (including measures to prevent soil erosion or other damage to the land) as the Soil Conservation Commissioner under the *Soil Conservation Act 1938* may recommend.
- (2) The holder of the lease must not overgraze the leased land (or permit or allow it to be overgrazed). For this purpose, a decision of the Minister as to what constitutes overgrazing is final.

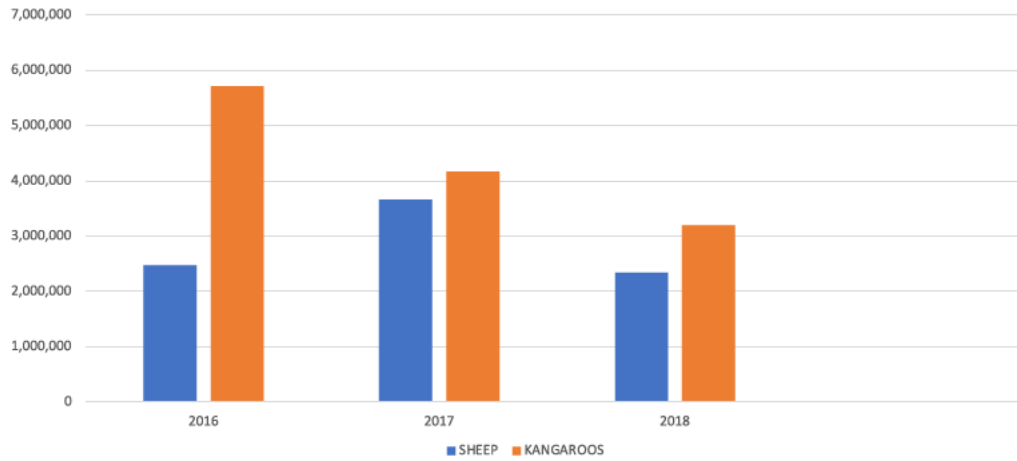
Attachment 5

Sheep, Cattle & Kangaroo Numbers in the Western Local Lands Services Region –
(Compared to Sydney Population)



Attachment 6

DO KANGAROOS OUTGRAZE SHEEP in WLLS REGION?



ANIMALS per Sq Km (100 Ha) 314,500 Sq Km in WLLS Region

	<u>2016</u>	<u>2017</u>	<u>2018</u>
<u>SHEEP</u>	8	12	7
<u>CATTLE</u>	0.5	0.6	0.3
<u>KANGAROOS</u>	18	13	10

End of submission

Geoff Wise