

Health and wellbeing of kangaroos and other macropods in New South Wales

David Brooks: Answers to supplementary questions

Question 1:

Are you aware of any assessment process that NPWS takes to assess whether damage mitigation licenses or other non-commercial permits should be granted to landholders to kill kangaroos?

Response:

No I am not, nor do I think I'm the right person to ask. I have read through the NPWS's application form licenses to harm, however, and it appears to be a rather simple process, heavily based on trust of the applicant. I note there is provision for a visit to the property concerned (a tick as to whether or not someone in the NPWS thinks it necessary), though no indication is given as to why/why not this might be so determined. I doubt that the NPWS has the staff or funding to make many such visits, let alone inspect the properties (many of which would be huge) sufficiently.

Question 2:

In theory, could NPWS issue as many permits as there are kangaroos on the property?

Response:

Again, I'm afraid I don't know, and am not sure I'm the right person. I imagine that, to prevent such things happening, they would need to be in possession of information concerning how many kangaroos there were on such a property, and that, it seems – the knowing how many kangaroos there are, or aren't, anywhere, would seem to be one of the key issues emerging. I would think that if they used available figures for the respective KMZ they'd be likely to assume there were more roos on a property than may actually be there, which could create situations where the number of permits issued might be greater than the number of actual roos. The only way they could be sure they weren't opening their

system to such abuse would be to survey every property themselves – something, I imagine, ways beyond their staffing capacity.

Question 3:

Do you know whether permits can be issued even when the land is currently not being used for any agricultural purposes?

Response:

Again, sorry, I'm afraid I don't know, and am the wrong person to ask.

Question 4:

Given you state that kangaroos are a protected species in law but there is actually no state body that makes much of an effort to ensure their protection, do you think that DPIE, NPWS or the RSPCA are fulfilling this function in regards to kangaroos?

Response:

There are various things that might be said here. One of them is that the status of protected species does not appear to mean much in the first place. Governments can and do make changes to protected species classifications when it suits them. The ACT government has done this recently, to avoid legal challenges to *its* annual kangaroo slaughter, by shifting kangaroos from a *protected* to a *controllable* species (please see Brooks & Celermajer, 'Wild Lives and Broken Promises' at <https://www.abc.net.au/religion/david-brooks-danielle-celermajer-wild-lives-and-broken-promises/12474146>).

But, to answer more directly, **no, I don't think that the DPIE, the NPWS or the RSPCA are fulfilling this function** in regards to kangaroos. The **DPIE** authorises and supervises the barbaric 'harvesting' of kangaroos in the first place (although at such arms' length they don't seem to know very much about it). I fail to see that this can in any way be regarded as protection. Although its practice has recently changed, the **NPWS** appears to have profited (modestly) in the past from the sale of tags and permits to 'harm' kangaroos. (The term 'harm' is theirs. I can't see how *harm=protection*.) And to judge by (for example) the RSPCA's 2018 Report of the Board, the **RSPCA** does not see kangaroos as one of its concerns. In its 2017-18 reporting year – a year in which, as in any year in the last decade,

over a million kangaroos were shot in NSW, many in circumstances of severe cruelty – the RSPCA recorded one prosecution concerning one kangaroo.

Contrary to what the public may think are their charters, the NPWS and RSPCA are so close to the pastoralist and industrial farming businesses that they seem to serve the interests of those businesses ahead of the animals upon whom those businesses depend and whose lives those businesses take. Case after case of animal cruelty at industrial farming facilities, for example, has been reported to the RSPCA only to have the RSPCA claim their hands are tied, they do not have the right to inspect, etc. (Animal Liberation NSW would have extensive records of such cases.) The RSPCA is first and foremost a society for the protection of cats and dogs, and even here its record is unimpressive. Despite claims made four or five years ago by its former director that only 2% of dogs brought to it were euthanased, the actual figure state wide was twenty times that. The RSPCA's principal involvement with regard to kangaroos appears to have been in assisting in drawing up a rather cruel National Code of Practice for the Commercial Shooting of Kangaroos, with its highly questionable instructions for the disposal of joeys – instructions with which, ironically, even the RSPCA now seems to disagree.

In a recent interview, the RSPCA's chief science and strategy officer, Dr Bidda Jones, not only indicated that, while the RSPCA 'did have input' into the code, 'it does not approve on-the-ground methods of killing joeys', but also stated quite clearly that 'there is **no requirement for training or competency assessment** for killing joeys **and no monitoring** of this **in the field,**' which I understand to be an indication that the NPWS itself is not active in these areas. (I might also add that she also states, in this interview, that the RSPCA 'does not support' the killing of kangaroos for commercial purposes.) [see: <https://www.abc.net.au/news/2021-04-08/us-ban-commercial-shooting-kangaroo-leather-football-boots/100050994>]

Question 5:

What do you think of the idea of mandated kangaroo corridors to allow kangaroos to travel the public and private landscape along their ancient migratory pathways?

Response:

I applaud this idea. In fact I suggested something rather like it in my original submission. There would be huge problems in implementing such a policy but I think huge changes have to be made to our agrarian policies, for several pressing reasons, and we should get started as soon as we can. The one word I would not have used is 'ancient' since I don't think we could ever determine what those pathways were and they will have changed over time,

especially since western culture began to impose patterns of ownership and so partitioned and began to destroy the friable surfaces of the land. We would need, that is to say, to be identifying *existing* and *recent* ranges rather than ancient ones.

In effect we have clear-felled the great open forests that existed on this continent before white settlement. In retrospect it is perhaps more like a scorched earth policy. Vast reparations are required to reinstate, or rather *instate*, a kind of **mosaic farming, made of farmable land interspersed with re-wilded land** in such a way as might serve the needs of bushfire protection, climate protection, and the combined purposes of biodiversity and wildlife protection. In such a mosaicised landscape, rewilded and incorporated extant wild portions could be so arranged as to serve as wildlife corridors. This can be done – we know how to do it – and we could achieve it through the **progressive introduction of various environmentally friendly land management policies**.

What we would need, as far as kangaroos are concerned, are **trained teams of specialists** in kangaroo ethology, more specifically **in ‘reading’ macropod ranges and landscapes**, who would consult with and work with landholders, to work out regimes that served their mutual needs. A huge task, as I say – and one that would take more enlightened governments than we are used to – but hardly impossible.

Question 6

Given you state that after shooting their mother, killing joeys seems to be the only ‘humane’ option instead of, for example, arranging for their rescue, do you think it should be mandatory to have a wildlife rescuer present when females with joeys are killed?

Response

It would seem that this question is based upon a misreading of my submission. It is the National Code of Practice that says this, and I am in total disagreement with this statement. In my submission I suggest instead – and albeit by way of wondering why there is *not* such a thing – the only ‘humane’ way of treating joeys orphaned by the harvesting process would be to take them to rescuers.

Mandating having a wildlife rescuer actually present would be a wonderful development, though I think, given the economics and the personal dynamics involved (the rescuer having to stand by and watch kangaroos being shot in the first place), also probably quite impracticable. **Mandating that shooters take orphaned joeys to rescuers**, on the other hand, **would seem quite do-able**, much as I imagine it would be decried as utterly impossible by shooters themselves.

Question 7

Can you explain what you mean by 'institutionalised conservation killing as the preferred mode of wildlife management, to promote the interests of corporate conservation'?

Response

A vast question, and one which I have already addressed at some length elsewhere. I will attach [**APPENDIX 1**] an essay, 'Cull and Culture', from my recent book *Animal Dreams*, which explains my position in a more nuanced way than I am able to do here.

There are many different schools and theories of conservation, but increasingly in recent years they have polarised between what we might call 'traditional' and 'compassionate' conservation. The issue which has caused this polarisation is the extent to which we can and should kill in the interests of conservation.

In 2017 the Royal Zoological Society of NSW, devoted its annual forum to the theme of 'Killing for Conservation'. A subsequent issue of *Australian Zoologist* (vol.40, issue 1, 1 January 2019) was devoted to papers from that forum. 'Killing', the editorial stated,

has always been a part of species conservation, both as a threat and a mitigation tool. As a conservation tool, killing is employed in a variety of situations, including collecting museum specimens, teaching and research, eradicating pest species, and conservation through the sustainable use of wildlife. In recent decades, however, killing has become more contentious as a tool for conserving native species. At the same time, the need to conserve fauna has greatly increased. This has generated more tension. But what is the science that lies behind such killings? When do we use it? Does it work? What are the political dimensions? What are the consequences? Are there alternatives? And are all forms of killing seen as equal?

Since killing can be distressing, uneven in its acceptability, and evokes strong opinions, the topic is rarely discussed and debated as a theme. The day will bring the topic together with a series of case studies, viewpoints and plenary discussions.

'Traditional' conservation tends to accept that killing is sometimes a necessary strategy in achieving its aims (the question of what are and should be the aims of conservation is another huge one). 'Compassionate' conservation, on the other hand, is reluctant to accept the necessity of killing and advocates the search for other means.

But of course it is not so simple. Other factors lie behind these contending positions.

'Traditional' conservation, for example, tends to favour the preservation (and rights) of a species over the preservation (and rights) of individuals of that species. It tends – in Australia and New Zealand particularly – to favour *native* over *introduced* (exotic) species, and so to favour the extermination/elimination of 'feral' animals in order to encourage the welfare of 'natives', etc. It assesses the impact/pressure of various species upon *biodiversity* and, where it deems necessary, tries to reduce that pressure by reducing the population-size of those species.

My own position – akin to the 'compassionate' position, though I have some semantic problems with that term – is that these aims (concern for the welfare of species; preserving and prioritising native flora and fauna; encouraging biodiversity, etc.) sound very nice, and as broad principles I support them, but things (as I say in 'Cull and Culture') are more complicated than that, and I believe that there are stronger and more coherent arguments on the other side.

To take up conservation killing as the preferable option is, to my mind, not only naïve and disingenuous but, both rationally and ethically, something of a mess. To give but one glaring example, it's massively hypocritical to condemn outright and seek to eliminate by whatever lethal means possible 'invasive' species we have brought with us when (a) we exclude from this attack two of the most numerous and environmentally destructive of those species, sheep and cattle, because they are of economic benefit to us, and (b) take completely out of the equation – not even for discussion – the worst invasive predator of all, which is to say ourselves.

To opt for the lethal option is, first and foremost, an *economic* choice. It is cheaper to kill/cull a feral species – or a native species that is deemed to be too numerous – than it is to find a non-lethal solution. It is also much more appealing, to those under financial pressure or driven by financial imperatives, to make money *from* a species than to spend money *on* it. Killing is also a known option, a default position – we have thousands of years of killing animals behind us; it's arguably one of our ways of being – whereas the non-lethal options are largely in the areas of the unfamiliar or unknown. It's perhaps for these reasons (but, again, there are others) that conservation killing has got so much traction in recent times, to the point where we can think of it as our governments' preferred option: cheap, nasty, and hypocritical, but preferred.

As to corporate conservation (conservation killing and corporate conservation are rather intricately connected), the term is not my own. It comes from **W.F. Benfield**, a New Zealand naturalist (*At War with Nature: Corporate Conservation and the Industry of Extinction*, 2015), who used it to describe what we might otherwise term the killing industry – though doubtless the NZ government would speak of it as the 'animal control' industry in that country.

A brief digression:

Although New Zealand nurtures a reputation as one of the cleanest and, environmentally, most 'innocent' corners of the planet, many of its rivers are so polluted by effluent produced by industrial farming that it's not inappropriate to think of them as dead. More to the point, NZ is one of the most poisoned 'natural' environments on Earth. NZ has, as its government has long held, a significant problem with 'invasive species', dozens of them even if we speak of mammals alone: deer, foxes, stoats, ferrets, possums, rabbits, rats, etc. And has legislated that its national parks and other 'wild' land will be rid of these species, completely, by 2050. As an interim measure it has determined to be rid of rodents, stoats and possums by 2025 (<https://www.nationalgeographic.com/science/article/new-zealand-invasives-islands-rats-kiwis-conservation>). To this end it has become – has long been – one of the world's largest users of pesticides. It uses 80%+ of the world's 1080, for example, and currently a vast amount of brodifacoum. The NZ government has its own pesticides production facility. Since 2018 NZ is even – although this is in private hands – the world's only producer of 1080, a poison banned almost worldwide (only 7 countries still use it) as inhumane.

But this is not about NZ. My point – and Benfield's – is that the national effort there has become a broad-based international 'industry' involving a large number of NGOs, research institutes ('independent', private, commercial and academic alike), government initiatives, grant programs, etc. , and that, although these programs and processes are many faceted, widely distributed, and sometimes hard to track, they form a governmental/academic and commercial network so large that one might refer to it as an economy subject to the necessities of sustainability – self-sustainment – and profit that all economies experience.

NZ is an island, or collection of islands. That is why they can dream of eradicating 'invasive species' in the first place. And they *market their expertise*, on the one hand to raise the funds – and profits – to continue their work, but also as a means of improving their expertise for the main work at home. NZ has, that is, an **island eradication business**, and to date has supposedly 'eradicated' rats (for example) from something like 130 islands world wide (and contributed its expertise to several hundred more). A vast, internationally-oriented, 'environmental' killing business, itself sustained by a 'philosophy' of the precedence of native over 'invasive' species, the need to kill to conserve, etc.

Australia, too, is an island, a very large island, with many smaller island protectorates. A number of the islands 'cleansed' by NZ in this manner have been Australian islands. New South Wales just employed the expertise of the NZ enterprise in the eradication of 350,000 rats on Lord Howe Island. Many Australians have worked in or with or have shared their expertise with the NZ eradication industries, and many in the NZ eradication industries have worked with the Australian industries.

To give but the tiniest glimpse of the pervasiveness of these networks: just a few nights before I attended the hearing before your committee I was at a public meeting in the Blue Mountains held by the Australian Invasive Species Council, who wished to drum up support

for and understanding of the need to use 1080 poison for animal control in NSW, and against the BMCC's recent ban on the use of 1080 in its municipal area. I cannot tell you how often – perhaps it was only a dozen times – *island eradications* were mentioned, although no actual islands were in fact ever in question.

One looks at the Boards or Faculties of such societies and NGOs and research institutions and sees where their members have worked before, what *other* boards and faculties they are on, where they were trained, where their scientific advisers were trained, etc. One looks – to turn to academia – at the joint authors of papers, where *they* were trained, where *they* are working, where *else* they have worked, what *else* they have worked on. Slowly one begins to understand and track the network. Slowly one begins to identify the governmental focal points, the commercial/industrial focal points, the academic focal points which serve to drive it. Over and over, to offer again just one example, when I look into the background of **people driving major culling initiatives in Australia** – the commercial kangaroo harvest, the ACT non-commercial kangaroo cull (which entails millions of dollars in shooting contracts, etc.), the push to cull brumbies in the Kosciuszko National Park, etc. – I find the ANU's Fenner School, or certain departments, institutes or 'centres of excellence' of the University of Sydney, the University of Canberra, etc.

I have done a certain amount of such tracking with regard to the ACT's annual slaughter of kangaroos (['Roogate'](#), 2016)..

But enough. Perhaps, in assembling your list of witnesses, reading the submissions, and pursuing the questions arising, you have already wandered some distance into this network.

Question 8:

Given you reference the continued cutting of the NPWS budget, how do you think this impacts the government's statutory obligation to protect kangaroos?

Response:

I think it has a significant impact. In as much as the government has established no other separate entity for the protection of kangaroos – or for the protection of wildlife more generally, as far as I have been able to determine – and has devolved its responsibility upon the NPWS, any cuts to the funding of the NPWS will very likely deleteriously affect (and *have* affected) the NPWS's ability in this regard, and any *serious* cuts to the NPWS will very likely have serious impacts. Amongst many other things, reduction of government funding increases the pressure on the NPWS to *earn* money from its operations, as it currently does, like the Catholic Church of old, from **the selling of indulgences, as in licences to harm the very creatures it is supposed to be protecting.**

See, for example, **my answers to questions 1 & 2**, or the quotation from the RSPCA's chief science and strategy officer, to the effect that there 'is no training [or] supervision' in regard to the killing of joeys, etc. If there were ever to be such supervision, it would be the NPWS's responsibility. I suspect that their own first cry, if they were pressed on this issue, would be that they do not have the funding. I would think that, **without a very large boost in funding and a complete re-think of their concepts and strategies of protection in the first place, the NPWS will remain quite toothless in this regard.**

Question 9:

Given that only 8% of NSW is national parks and that you suggest that as part of a landholder's drought relief funding package you would like to see watering sites and wildlife corridors open to kangaroos as part of the government's conservation responsibilities, what other responsibilities do you think landholders should have to kangaroos?

Response:

I think it should be incumbent upon them **to share graze on their properties with kangaroos** in an agreed portion, i.e. **to an agreed (or mandated) formula**. The idea that they 'own' all the graze on their property, and can devote all the graze to their chosen grazing species (sheep and/or cattle) is one of the fundamental elements in the devastation of Australian wildlife (see the government's recent capitulation to farmers on the issue of koala habitat). **It could be that this mandated formula could be offset by – or take the form of – wildlife corridors.**

I think it should also be mandatory that they **monitor the health and wellbeing of macropods (and other wildlife) on their property**, and that, with regard to wildlife care, there should be strong recommendations or mandated procedures they should follow in the face of various predictable threats (floods, bushfires, drought, outbreaks of disease). We are told we must have **bushfire plans**, for example. But there is no requirement to have a plan **for one's animals**. (I personally believe that **no one should be allowed to 'have' more animals than they can adequately take care of**, and that this should include graziers.)

Question 10:

Can you please expand on your submission's assertion that the killing of kangaroos has become a part of settler culture itself, sustained by cultural myths of kangaroo superabundance, hyperfecundity, and danger to landscape and biodiversity?

Response:

I have written quite directly about this issue in a piece not yet published (but about to be):

Kangaroos ... are just one set of victims amongst many in our perennial war against non-humans, but they are persecuted so viciously and paradoxically (they're also an icon, a national emblem, provide the names of many of our national teams, etc.) that they seem to focalise something beyond themselves – are scapegoats, I've sometimes thought, for the hatred many humans still don't feel quite free to express toward one another, or toward the animal in themselves. But in truth this hatred has numerous sources. We've mistreated animals for so long, and the guilt at this mistreatment has festered within us so long, that – counterintuitively, against all reason – animals themselves are being held to blame for being there to be mistreated in the first place.

We look around ourselves, in times of drought, at the desolated landscape, and blame kangaroos for the lack of grass; it doesn't seem to factor that it's the sheep we've put there who've eaten most of it, and that the devastation's been caused by white settlement. Now we settlers are dependent upon this devastated ground for our livelihood, and the roos are still there, survivors, witnesses to our impotence and error. It seems our embarrassment knows no bounds. Someone has to be to blame; someone has to be the subject of the rage and frustration. And it seems the 'roos are it. And the designated protectors of our wildlife do almost nothing. The killers are encouraged. Administrative corruption goes unchecked. Those who save lives are ridiculed, punished and persecuted, and carry on their backs, because they care, burdens almost too great to bear. (*TURIN*, ch. 25).

I have sketched something of the historical depth of this settler persecution of kangaroos in an essay 'A Roo Battue', of which I attach a copy [**APPENDIX 2**]. But to summarise briefly and a little more generally, I think that the only explanation of this country's deep and seemingly unshakable predisposition against – it often seems like a hatred of – the kangaroo is that it *has* become a part of settler culture and, as such, continues – and sustains itself upon ideas/beliefs that continue (what I have called 'myths') – despite clear evidence of their falsehood.

As you have heard from many witnesses, as my initial submission explains at length, and as the simplest understanding of kangaroo numbers, 'history', and anatomy/biology should make evident, kangaroos are *not* superabundant in terms of their 'natural' and historical presence in the landscape, they are *not* hyperfecund, they are *not* a danger to landscape (it is *their* landscape), and such danger to biodiversity as they may be held to represent would be presented by any grazing animal at all, given the extent to which white Western human ('settler') culture has devastated the biomass.

But I think in fact this predisposition-to-killing has two parts. **One part** is the predisposition against kangaroos per se, and is sustained/explained by the competition they are seen to represent with the sheep and cattle grazing industries. Word got around in the early

nineteenth century that one kangaroo ate as much as two sheep, and that therefore every kangaroo on one's property was depriving one of the economic advantage/potential profit from two sheep. This simple formula, correct or incorrect as it may/may not have been, has led, as far as kangaroos are concerned, to immense tragedy, as my attached paper describes, in its accounts of the great kangaroo battues of the nineteenth century.

A **second part** is to do with the nature of the sheep and cattle industries themselves. Whatever else these industries are, they are *killing* industries. Cattle are killed for their meat. This is seen as the purpose of having them in the first place. And a large proportion of sheep ditto: they are '*meat*' sheep. And that proportion of 'non'-meat sheep – '*wool*' sheep – is/are slaughtered, for mutton, when, after three or four years, the quality of their wool declines (as it does, always and naturally). Everyone with anything to do with these industries – **a vast proportion of rural Australia – is thus accustomed to/owes their livelihood to – such killing. Slaughter, this is to say, is 'naturalised', a part of the culture.** It follows, tragically, that the slaughter of kangaroos, to this vast proportion of rural Australia, does not seem so big a deal.

Question 11:

How do you think this culture can be challenged to better protect kangaroos, particularly in light of the kangaroo industry's existence and the government's involvement in it?

Responses:

(A) What I have called **the myths** (of abundance/overpopulation, hyperfecundity, etc.) fuelling the persecution of kangaroos **have to be challenged**.

I think the most effective challenge would be through a serious inquiry into the kangaroo harvesting industry, exposing, on the one hand, its exploitation and propagation of these myths in its own interest, and, on the other, the way it would appear to have manipulated the survey/population estimation processes in the same self-interest. If it can be revealed that, as I suspect may be the case, the public have been lied to in any way, the public may be the better prepared to re-think its own attitudes to kangaroos.

(B) I think that '**conservation**' in Australia is a **dysfunctional mess** and in urgent need of the most serious and extensive reconsideration. I believe there should be a **national congress** of some kind as a means of better informing the public, politicians and conservationists themselves about the issues and the various options for addressing them. I believe we should be drawing on **international expertise** in this matter, if only as a means of raising the level of thought above destructive local prejudices. I believe that, alongside such a congress, there should be **more inquiries** of the nature of this present inquiry into various aspects of

this mess. I believe that there should be a **national conservation watchdog** of some kind, to ensure that 'conservation' programs are designed and conducted to the highest and most humane standards, etc.

(C) The kangaroo industry has some aggressive PR. In the last few years – since I began watching so closely (December 2017 -) – it has seemed to me that there has been a steady flow of pieces on the ABC News and other outlets designed to reduce public opposition to the culling/'harvesting' of kangaroos, either through focussing on their putative superabundance, or their suffering in drought (and therefore needing to be killed in advance), or (presumably to reduce their appeal to tourists, etc.) their aggressiveness toward humans. Pieces pressing the case *against* harvesting are far fewer and farther between. This imbalance holds in such para-academic outlets as *The Conversation*, amongst the favoured 'friends' of which are numerous pro kill/culling conservationists. All of which is to say I think *one* thing that could be done is to mount a **pro-kangaroo hearts-and-minds campaign** in the media.

Question 12:

Given Australia's horrible record of native animal extinctions, how do you think the 'settler culture' you speak of has impacted other wildlife?

Response:

For the first century and a quarter after 1788 'we' did our best to exterminate all the wildlife 'we' came across, to the extent where this might be seen as a kind of grand colonial campaign, as may be witnessed by the great kangaroo hunts of the mid- and late nineteenth century, and the conception, passage and history of the *Marsupials Destruction Bills* of the late 1870s – bills which initiated bounty systems and created immense damage in the decades before Federation. See this neat summary from Mike Foley, *Sydney Morning Herald*, 20 July 2020:

Between 1877 and 1930, more than 27 million animals were killed in Queensland under the bounty system established by the Marsupial Destruction Act.

In NSW, in 1879, the Marsupial Destruction Bill was proposed to the state's parliament. It was incorporated to the Pastures and Stock Protection Act and paid bounties for 21 million kangaroos and wallabies and 3 million smaller marsupials over 20 years to 1901.

The popularity of the bounty systems made them unaffordable for state governments so they abandoned payments after several years But with the requirement to cull marsupials still in place, there was a significant increase in the already popular practice of baiting with strychnine poisoning. ...

Baiting programs for native animals were wound up in the 1930s.

Or this from Queensland Hansard 1895:

The COLONIAL SECRETARY said: In moving the second reading of this Bill, it is hardly necessary to ask the House to remember the legislation that has taken place in connection with this matter in years gone by. It is sufficient to mention that for years Parliament affirmed the wisdom of taking some action in regard to marsupials. The Act was renewed from year to year according to circumstances and the times. Owing to the operation of the Act and other causes it was deemed advisable to discontinue making a compulsory levy for the destruction of marsupials. In point of fact, the increase in the price of marsupial skins in itself caused a considerable reduction in the number of marsupials in consequence of the large number that were killed, and droughts assisted in that direction.

The immense damage caused by the nineteenth century vogue for strychnine poisoning of Australian wildlife (strychnine baiting was made mandatory on Victorian landholdings in the Dog Act of 1852) was but the first stage of a destructive course (strychnine was followed by DDT, DDT by 1080) still very much in operation today. 1080 is still in use here – strychnine itself is still used against wild dogs and emus in WA – brodifacoum heads a ‘second generation’ of rodenticides, etc., etc.

A piece from *The Conversation* illustrates clearly enough:

A central Australian dingo extermination campaign was launched in 1897, to eradicate dingo and rabbit populations from South Australia’s arid zone. Described as the “[Party of Poisoners](#)”, the team travelled from Gawler Range to Wilpena Pound, covering an area 1,000km long by 480km wide. It took five months.

The poisoners dispensed phosphorised pollard and strychnine sticks and laid poisoned grain in lightly covered furrows. Meat baits were placed around the bases of the red and white mallee bush. Billabongs were poisoned. All species that might have competed for the scarce resources were effectively eliminated – carnivore and herbivore. Farming ultimately failed in the region. The natural biodiversity [never recovered](#).

Question 13:

Can you expand on your statement that across all species of kangaroo, it would be ‘pushing the bounds of probability’ for a doe to produce an average of 1.5 joeys per year?

Response:

I don't think I said 'across all species of kangaroo' but I accept that that may have been an implication of my phrasing, and it would not in any case be too far wrong. Wallabies tend to have a shorter in-pouch period than the larger kangaroos, but we are not (yet: the draft *Kangaroo Harvest Management Plan 2022-2026* seems to want to leave this option open) talking about harvesting wallabies. Bolton et al ('Reproduction in the agile wallaby *Macropus agilis*', 1982) suggest that, 'under the best conditions', the Agile wallaby should be able to rear three offspring in two years. Jackson and Vernes (*Kangaroo*, 2010) say 'pouch emergence varies from species to species, but is, typically, about 147 days for the Musky Rat-kangaroo, ... 100-150 days for the potoroids ... and 120-310 days for the macropodoids [the only under our concern at this point]'. Monash University (https://users.monash.edu.au/~skeast/content_teachers/back-info.pdf) suggests that, overall, wallabies are out of the pouch at about 6 to 7 months, and Eastern Grey kangaroos at between 8 and 10 months (240-300 days). I would therefore stand by my original assertion that, although not biologically impossible, it would be 'pushing the bounds of probability', even in ideal circumstances (ideal seasonally, ideal in terms of protection from predation, etc.), for an Eastern or a Western Grey or a Wallaroo doe to rear, in two years, three offspring to the point of permanently leaving the pouch. I.E. if we take the lower-end, 240-day period before leaving the pouch, and assume an *immediate* re-occupation of that pouch by the next joey, and a third – that is, 240 days x 3 – we get 720 days (and the doe should get a medal): ten days short of two years (730 days). Red kangaroos, I have often heard, reproduce more quickly, but I note that the Australian Museum says 'the young [red] Joey will permanently leave the pouch at around 235 days old' – not really a huge difference.

Question 14:

Given we can't reliably estimate the number of kangaroos killed in vehicle collisions, exclusion fencing, etc, and that the overall commercial take dropped dramatically in the years 2006-2010 and has not really risen in the decade since then, what do you think this means in terms of the sustainability of the kangaroo population?

Response:

The number of roos killed or mortally injured in vehicle collisions is substantial and is hardly likely to go away. The impact of cluster/exclusion fencing, too, is substantial but, having allowed it in the first place, it will be very difficult to take it away. I am not, however, in any position to express an opinion as to whether their impact on the sustainability of the population itself is anywhere near the impact of the shooting/harvesting itself.

As I explain in my original submission, the real factor here – the one least likely to have been doctored – is that the overall commercial take ‘dropped dramatically in the years 2006-2010 and has not really risen in the decade since then’. There are various possible immediate explanations for this (*sufficient* causes, if you like): that there aren’t enough shooters in the ‘industry’, that the rate of pay is not sufficient to *attract* shooters to the industry, etc. (we have even heard, from pastoralists, politicians, and the KIAA, that animal rights activists are to blame). But the number of shooters in the industry has steadily declined over the decade mentioned, and those who remain complain they are working harder and harder, driving farther and farther to find roos to shoot, spending more and more on overheads with less and less cash coming in – all factors which, along with a decline in the number of chiller boxes available, the decline in the average size of the roos being shot, and the number of *ex*-shooters who are saying that this or that part of the country has been hunted/shot *out*, point, as more fundamental explanations (*necessary* causes?), to there being not enough roos out there to provide a harvestable ‘crop’ in the first place, and the strong possibility that the kangaroo ‘industry’ is no longer viable.

I don’t get the sense that the roo shooters who are still in the industry are picking and choosing the kangaroos they shoot. I imagine that, on the contrary, they are shooting all they (legally) can. That the annual take is at present so much lower than the quota set each year suggests strongly that the take, logistically, *is all there is*, which means, yes, that the ‘estimated population’ is grossly exaggerated, and that the quota based upon that exaggerated figure is a pipe dream. One wonders why these inflated figures exist in the first place if it’s not to create an *illusion* of sustainability, so that the industry can stay in business, beyond its use-by date, while quite literally, behind the screen of those figures, running the kangaroo population into the ground.

I fear that the current take is already too large and, small as the industry no doubt feels it to be, is already a serious threat to the population’s sustainability. (If there *were* plenty of kangaroos – to cite just one piece of evidence of this – why would the draft plan for the *next* five years be trying to open up the option of harvesting species of macropod it has never taken before?)

Question 15:

Given you said there is immense pressure on anyone involved in determining kangaroo population estimates, can you explain the “tragic” impact you referred to which you said you would like to expand on?

Response:

When I referred in my witness testimony to the ‘immense pressure on anyone involved in determining kangaroo population estimates’ I was referring first and foremost to those people up in aircraft counting actual kangaroos, and their probable awareness that other kangaroos’ lives may well depend on the numbers they see, and how this may well be felt by such people as a substantial possibility. I.E. I was trying to emphasise that I do not imagine that *these* people are likely to be in any way intentionally the source of mis-information or the exaggeration of numbers.

But there are other kinds of pressure involved in this situation – from government and industry aspirations, from pastoralists and other stakeholders – and the critical factors/stages in this regard are (a) the *correction factor*, which is to say the number of kangaroos whose presence is imputed from the number actually seen; this correction factor has been lifted at various points through the years (never, I think, been reduced), and (b) *the extrapolation* of that figure into a number of kangaroos per square kilometre in the area surveyed, and (c) the extrapolation of *that* figure over the overall area of the Kangaroo Management Zone concerned. I do not say that these figures are *deliberately* manipulated upward, but to simply take the roos-per-square-kilometre figure and multiply it over the entire area of the KMZ, as one can in various areas see has been done (from tables in the Quota Reports), would seem to me deeply flawed and misleading, given that (for example) large parts of the KMZ are private land from which kangaroos have in many cases already been hunted out, or, as is the case in many KMZs, more rugged kinds of terrain in which kangaroos are less likely to be found in such numbers.

Exaggerate these survey numbers in any way – even if it is only in an assumption (/myth/belief) of superabundance – and it becomes possible that more kangaroos will die than would otherwise have done. The death of any animal unnecessarily is tragic enough; the manipulation of supposedly ‘factual’ information in such a manner as ensures or makes likely that more animals will be killed than would otherwise be the case is particularly so. Exaggerate the population estimates and you achieve a higher quota figure than you would otherwise achieve.

I admit that, given the apparent stagnation of the take, this additional killing does not seem to be taking place at this time, but it’s not quite so simple as that.

Given that there are certain unrealistic population growth rules-of-thumb built into the process (15%, 17%), for example, an exaggeration at one point will have an incremental effect (exaggerate one year and the figure you achieve will become ‘factual information’ upon which to base the *next* year’s figure, etc.) while all the while the *actual* population size may be somewhat smaller, and a higher actual percentage is being taken from it than the figures reveal or claim. All of which serves to create a lag, a potentially *tragic* lag, in the time it takes to register that the population is in distress.