Submission 2. Re

Vegetation Management (Reinstatement) and Other Legislation Amendment Bill 2016

Dr I. F. Beale

Summary

In my opinion

1. The Vegetation Management Act ignores existing research on ecological principles operating in the Queensland rangeland areas.

2. Emphasises only possible effects of woody vegetation management from clearing while ignoring the detrimental effects established in research literature of woody vegetation thickening on biodiversity, soil erosion and ecological processes as illustrated by the problems from species such as prickly acacia.

3. Ignores the effect of thickening woody vegetation on reducing the fuel load potential of the ground layer and thus reducing the use of fire as a management tool.

4. In reality the Native Vegetation Management Act operates in concert with other Acts, particularly the one concerned with management of the kangaroo population. And this, at present, ignores the fact that management of grazing pressure is an essential part of range management and thus of achieving the Purposes of this Act.

5. The Purpose around “greenhouse gas emissions” should be re-examined in the light of recent research developments.

6. So this Act is unlikely to achieve its stated purposes in the Queensland rangeland area, with sustainable land use the first casualty.

7. And, incidently, it enshrines discrimination against the ground layer vegetation species and does not abide by The Precautionary Principle, oft invoked by the conservation fraternity.

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Introduction.

"*Paul Birkeland* April 23rd, 2015

Unintended consequences seem to be a common thread through most of the arguments here. Perhaps it might be best to consider all possibilities when passing a law – the good AND the bad consequences, to weigh costs v benefits. Then both sides would have an equal say! Currently the enviros have the stage; previously the polluters did. Somewhere there is a balance."

In comments at

http://www.aei.org/publication/18-spectacularly-wrong-apocalyptic-predictions-made-around-the-time-of-the-first-earth-day-in-1970-expect-more-this-year-2/ (Accessed 23/04/2016).

And, in my view, the rangelands area of Queensland is particularly poorly served by Vegetation Management (Reinstatement) and Other Legislation Amendment Bill (2016) and its predecessors

I will start this submission by asking the members of this committee if they remember the furore around the early 2000's on "DRY LAND SALINITY" and the big red map?

Beattie, P. (2002). "Salinity: Qld's life or death decision". Queensland Country Life 18th July 2002.

But then (I.F. Beale Queensland Country Life 18th September 2003) and in other discussions of that era

"**Some comments from the upper end of the Murray Darling.**

1. *In general (in Qld) areas receiving less than 600mm/yr are not usually at risk of salinity because insufficient rain falls to satisfy plant demand and recharge the groundwater.*

Qld Salinity Management Handbook, **(1997).** Qld Dept Natural Resources.

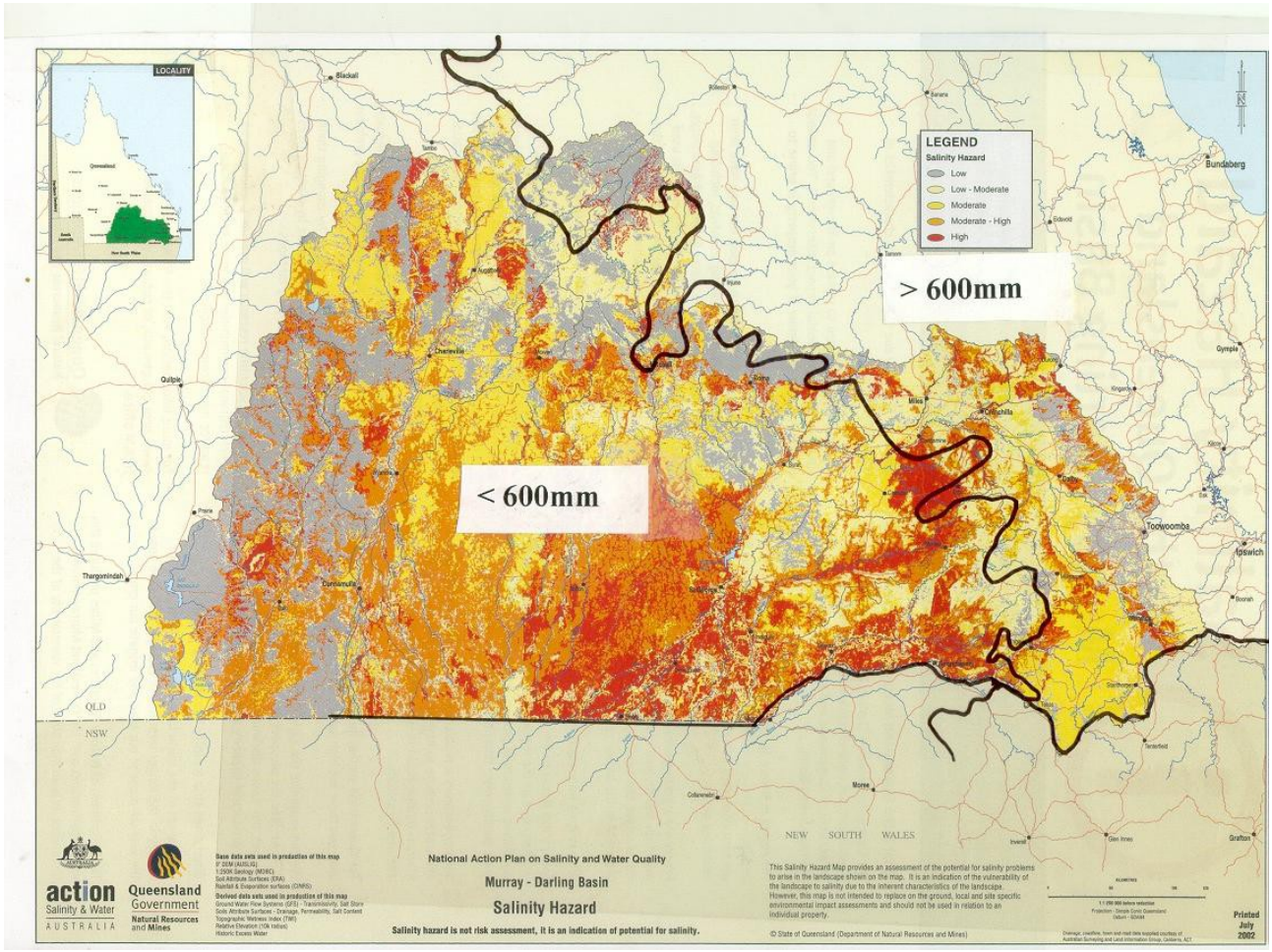
The text goes into detail as to why, and the reasons for the difference from Mediterranean areas.

2. Qld Murray-Darling map with 600mm (link below) shows a large proportion of the Queensland Murray Darling with rainfall of less than 600mm

This information was obviously available prior to:-

3. *On 2nd August 2002 industry representatives gathered with media at The Salinity Summit at Queensland's Parliament House to hear speeches from State Premier Peter Beattie, Federal Minister for Environment and Heritage Hon Dr David Kemp and others.* (Link below)

Where not listed in text, reference details are in the attached Appendices.



Some commenters above should note that the Premier was using sleight of tongue when he said (of the salinity hazard map) *Its **methodology** has been checked and endorsed by the CSIRO, the National Land and Water Audit and AFFA*. (Link below). **This is NOT an endorsement of the results of this mapping by those organizations, as e.g..**

http://www.jennifermarohasy.com/blog/archives/000871.html

*In March 2005 at the Australian Water Summit in Sydney I listened to a speaker from Geoscience Australia explain how technology used by the Queenslnd government to develop the salinity hazard maps and other maps used in catchment management planning were based on old technology. **I queried this during the question session and Brian Spiers (a member of the Conference audience) volunteered that the Queensland scientists who put the original maps together were not skilled in the technology that they were using.** This includes the map Premier Beattie said he stood by at the Summit and that he said CSIRO had endorsed.* (Link)

4. Personal Experience (Mungallala Creek)

We live in an area mapped as bright red (high salinity hazard) with enough community owned data to point to negligable levels of salt in the landscape.

A local meeting (Mitchell, Qld) was informed by a DNR staff member that “if we weren't getting

Where not listed in text, reference details are in the attached Appendices.

salinity from the Pacific, we were getting it from Lake Eyre". Unfortunately for that scenario, there is a region about mid-way in which salt levels are so low that livestock not drinking artesian water should have salt supplementation. This area is mapped as moderate to high salinity hazard.

As mentioned in the link above, this Qld salinity hazard map has been used as an obstacle to management of woody vegetation."

You will note that a reading of the Queensland Salinity Management Handbook 1997 punctures that balloon well enough that you will probably not have dry land salinity brought to the attention of this Committee. However I note that your Committee is dealing with some of the same zealots – so reading

http://www.numberwatch.co.uk/zealots.htm

is suggested.

You might also note my emphasis in the quote from Jennifer Marohasy highlighted above – obviously the Departmental staff associated were also not skilled in literature reviews and I see no evidence that this has improved.

I use this to bring to your attention the 600 mm isohyet, as it seems to me that there is also such a divide in vegetation response and why the rangelands area is not well served by the current act and its dependence on assumptions in the regional ecosystem mapping. Similar material was presented to the Productivity Commission enquiry on "Impacts of Native Vegetation and Boidiversity Regulations" (2004), as listed in Appendices.

From https://www.legislation.qld.gov.au/LEGISLTN/CURRENT/V/VegetManA99.pdf (Referenced 26/04/2016)

"Vegetation Management Act 1999

Purpose of Act

(1) The purpose of this Act is to regulate the clearing of vegetation in a way that —

(a) conserves remnant vegetation that is—
(i) an endangered regional ecosystem; or
(ii) an of concern regional ecosystem; or
iii) a least concern regional ecosystem; and

` (b) conserves vegetation in declared areas; and
(c) ensures the clearing does not cause land degradation; and
(d) prevents the loss of biodiversity; and
(e) maintains ecological processes; and
(f)manages the environmental effects of the clearing to achieve the matters mentioned in paragraphs (a) to (e); and
(g) reduces greenhouse gas emissions; and
(h) allows for sustainable land use"

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Some Assumptions of Regional Ecosystem mapping used to underpin the purposes of that Act

Clementsian Succession (e.g. Satler and Williams 1999)

"Ecological succession may be defined in terms of the following three parameters (Odum, E.P. 1971). "Fundamentals of Ecology". W.B. Saunders Philadelphia) :-

1. It is an orderly process of community development that involves changes in species structure and community processes with time
2. It results in from modification of the physical environment by the community; that is, succession is community-controlled even though the physical environment determines the pattern, the rate of change and often sets limits as to how far development can go seral stages)
3. It cumulates in a stabilised ecosystem in which maximum biomass(or high information content) and symbiotic function between organisms are maintained per unit of available energy flow. (climax).

And "The conventional notion of carrying capacity in range management rests on the theories of plant succession, defined as the orderly and directional process whereby one association or community of plant species replaces another" (Behnke, Scoones and Kerven (1993) "Range Ecology at Disequilibrium").

But these authors note that "The erratic and variable rainfall in many pastoral zones of Africa poses a further fundamental challenge to standard conceptions of carrying capacity" and "Irreversible, sudden or unpredictable changes in vegetation are difficult to recconsile with conventional notions of range succession as an incremental response to grazing pressure".

And, in the words of Dr Dean Graetz of CSIRO Rangelands, "In the Australian rangelands Clementsian succession is botanical astrology" and an alternative model called "state and transition" is proposed e.g Westoby et al (1989). Jones and Burrows (1994) show such a model for mulga country.

And these changes in state also cast doubt on the concept of "Areas of Preclearing Extent" as used in regional ecosystem mapping – the problem being the imaginary pre-clearing state of a transition not previously present. "As a result of land use (for domestic stock grazing) the Mulga Region ecosystems can in no way be described as "pristine", i.e. identical with their pre-Aboriginal or pre-European settlement state" (Purdie 1986). When the history of our district is considered - along with the invasion of buffel grass (the conservationist's "supreme weed" which ought to render the area disturbed e.g. Michael Thompson "Buffel grass in the firing line" Queensland Country Lifr 31st March 2005) – this area is about as pristine as a recycled virginity.

Trees as a surrogate for ecosystem health

Where not listed in text, reference details are in the attached Appendices.

http://www.ehp.qld.gov.au/state-of-the-environment/report-2007/contents/biodiveristy_species_protection.html

"The shorter-term impacts of clearing on plants and animals at any site range from the total loss of species that would be experienced in the conversion of native vegetation to cultivation, improved pasture or urban use to a reduction in species richness and diversity that would be experienced when vegetation is converted to native pasture. Habitat clearing across the landscape isolates species populations, reduces the size of populations, favours certain species over others and increases the opportunities for **invasive species to displace native species**. " - e.g. buffel grass.

However this ignores the effect of thickening of woody vegetation on the reduction of biodiversity, firstly on the ground layer vegetation (e.g. http://www.landmanager.org.au/vegetation-change-north-australia ,accessed 23/04/2016) and then on its other occupants as their needs for shelter and food are poorly met.

And it concentrates on a small fraction of the 50 – 60 million hectares of woodland in Queensland that has been cleared and ignores the rest - which is largely thickening.

http://www.beefcentral.com/wp-content/uploads/2015/12/Vegetation-Management-in-Queensland-Background-notes-for-State-MPs-Jan-2016-update.pdf (Accessed 26/04/2016).

We have an area of around 12,000 acres of leasehold which has thickened significantly in my lifetime and which forms a peninsular surrounded on three sides by cleared and developed buffel grass country. Our area provides daytime shelter for the local kangaroo population which migrates for night time grazing. The whole area has suffered severe drought over 2012-15 with somewhat better rainfall in 2016 so far. It has not been grazed by domestic stock since the beginning of 2015. The following photographs contrast ground layer response to rainfall this year between that and cleared country on the opposite side of the road.

Where not listed in text, reference details are in the attached Appendices.

Table 1. Examples of Ground Layer Response Cleared vs. Uncleared March 2016.




Photos were taken on opposite sides of the road. Note the poorly developed ground layer and particularly the lack of grass species recruitment – values going no where those of benchmarks listed in

http://www.qld.gov.au/environment/assets/documents/plants-animals/biodiversity/brb-benchmarks.pdf (Accessed 26/04/2016)

Incidently the upper left hand photo is taken in what was the wheat paddock of that lot, as required for selection by the "government enthusiasm" of 1902 when the area was opened for selection for wheat growing.

Woody thickening, ground layer yield and biodiversity

The reduction of ground layer yield with woody vegetation thickening is well documented as outlined in e.g.

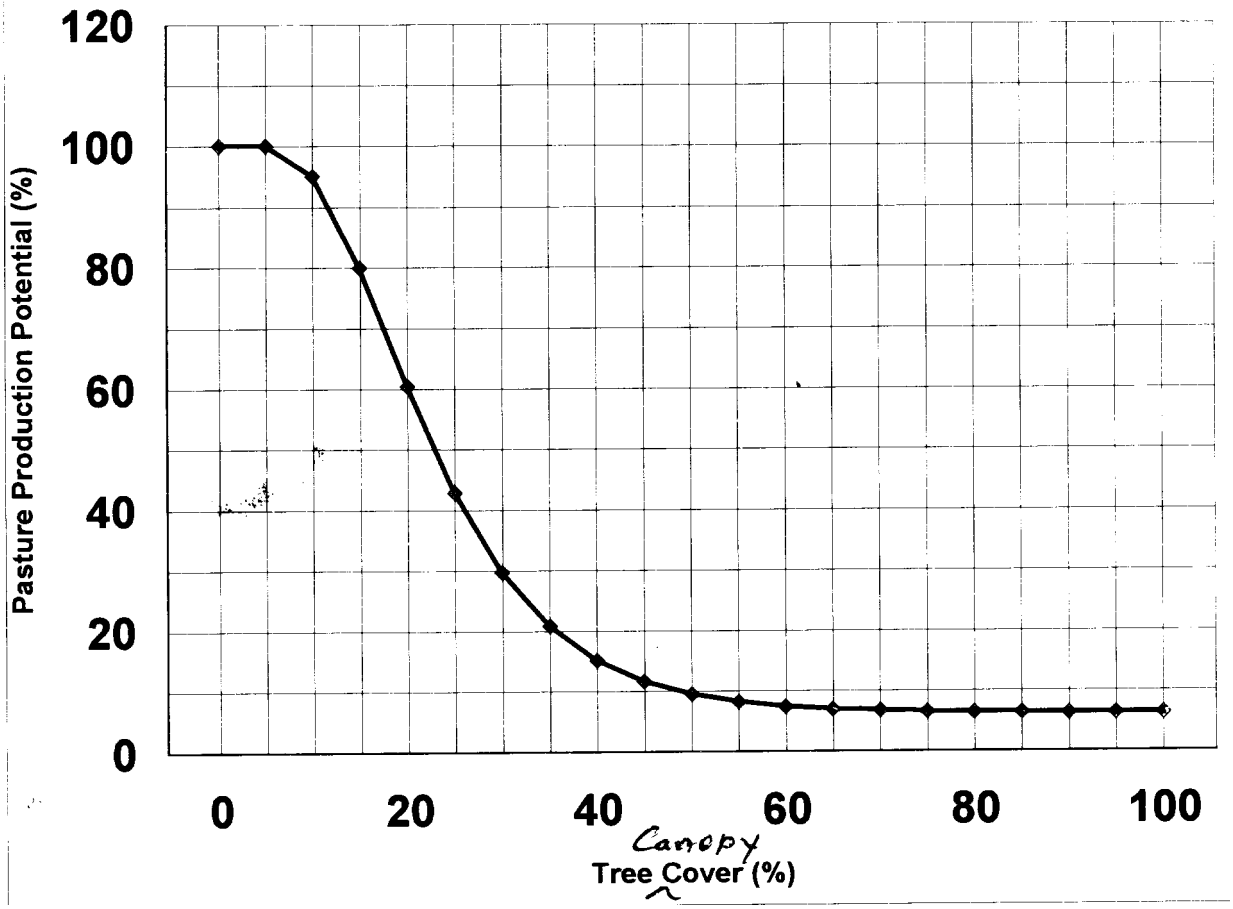
http://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Finance_and_Public_Administration/Completed%20inquiries/2008-10/climate_change/submissions Submission 343.

and

http://www.pc.gov.au/inquiries/completed/native-vegetation/murweh3

Where not listed in text, reference details are in the attached Appendices.

Figure 3. Modified Tree Cover - Pasture Production Relationship (Beale unpublished)



As this shows that a canopy cover increase to about 30% has reduced ground layed productivity to about 30% of potential. And in my experience this takes about 20 years in this area – with which time frame some argue that it must be slower as discussed in Appendices.

But that is missing the point that woody thickening is occurring and that agricultural productivity is being seriously reduced by the inability to manage this woody vegetation increase – while the cost of everything else is rising. And the cost of managing that woody vegetation increase is also rising with its thickening. In this cost is the reduction in the possibility of fire as a management tool due to reduced fuel loads.

And woody thickening can also reduce biodiversity (mentioned previously) as listed in

http://www.landmanager.org.au/vegetation-change-north-australia (accessed 23/04/2016)

http://aefweb.info/data/AEF%20Submission%20to%20Senate%20Inquiry%20into%20Native%20Vegetation%20Laws.pdf (accessed 24/04/2016)

as appears to be happening in our leasehold areas. These effects are more usually highlighted in areas where introduced woody species such as prickly acacia *(Acacia nilotica)* are increasing.

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A list of such impacts is given in

https://www.business.qld.gov.au/industry/agriculture/species/declared-pests/weeds/prickly-acacia

(Accessed 29/04/2016)

Impacts

Environmental

- Degrades soil by facilitating erosion.
- Threatens biodiversity through transformation of natural grasslands into thorny scrub and woodland.

Economic

- Decreases pastures and out-competes them for water.
- Forms dense thorny thickets that interfere with mustering, stock movement and access to water.
- Damages tyres (thorns).

Thus this assomption of woody vegetation as a surrogate for condition enshrines discrimination against the ground layer vegetation species – and likely its other denizens as well where the woody layer is thickening.

Other Regional Ecosystem Mapping Features

One is the frequency of comments at field days and such to “check your map as it is probably wrong” - of which we have several glaring examples.

Another example is the varied mapping produced for the same land area in the court case referred to in

http://www.queenslandcountrylife.com.au/story/3575485/land-clearing-fine-reduced/

Other effects are:-

1. Overstocking of remaining more open areas, with deterioration in land condition (e.g. Slaughter 2004)
2. Increasing soil loss in the areas of woody expansion - trees are a poor substitute for grass in soil retention (e.g. Gourlay 2004)
3. Decline in cover and food sources for native fauna smaller than kangaroos (e.g. the following quote from Chambers (1988) of an aboriginal perspective of the upper Warrego River area ca. 1865:- “--- for brigalow scrub, except for scrub wallaby, which require much shouting and driving, is bad game country ---“).

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Purpose "(g) reduces greenhouse gas emissions

Recent publications suggest that this Act might need it reconsider its role relative to carbon dioxide e.g.

Zaichun Zhu, et al (2016) Greening of the Earth and its drivers, *Nature Climate Change, Letter*, doi:10.1038/nclimate3004 via

http://joannenova.com.au/2016/04/18-million-square-kilometers-more-greenery-due-to-carbon-pollution-that-the-greens-hate/ and

http://www.beefcentral.com/wp-content/uploads/2015/12/Vegetation-Management-in-Queensland-Background-notes-for-State-MPs-Jan-2016-update.pdf (Both accessed 27/04/2016)

Overall Vegetation Management

I contrast the complex bureaucratic procedures that I have experienced as a result of this act and/or its fellows with the approach in New South Wales with its recognition of "Invasive Native Species" - many of which are common to Queensland as outlined here.

http://www.environment.nsw.gov.au/vegetation/

Management of Total Grazing Pressure.

One of the underlying principles of range management is the need for control of grazing pressure. Without it there is no range management so any claims of sustainability via this and associated acts are pie in the sky. And the cost to rural Queensland of that population is not considered.

Queensland Kangaroo Situation

		Sheep Equivalents (1.5K = 1S)
Qld Kangaroo Population *	26 ,162 ,000	17 ,441 ,333
Qld Human Population - Total	4 ,824 ,400	
Qld Approximate Rural Population **	516 ,600	
Qld Approximate Urban Population	4 ,307 ,300	
Kangaroos per Urban Person	6.1	
Agistment/K/person/Yr ***	$70.20	
Total Qld K Agistment/Yr	$340,106,000.00	
Share of Agistment Owed to Rural Population	**$303,680,000.00**	
Qld Sheep Population		1 ,800 ,000

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* http://www.qld.gov.au/environment/assets/documents/plants-animals/macropods/quota-submission2016.pdf

** Rural population of Australia (2014) 10.71% = 516 ,694 for Qld

http://www.tradingeconomics.com/australia/rural-population-percent-of-total-population-wb-data.html

http://www.qgso.qld.gov.au/products/reports/pop-growth-qld/qld-pop-counter.php

*** Agistment Calculation $3/head/week for dry cattle, 8 sheep = 1 beast, 1.5 kangaroos = I sheep

$3.00 (1/8 sheep:cattle ratio))*(1/1.5 kangaroo:sheep ratio)*52 (weeks/year) = $13/kangaroo/year

Total kangaroo agistment cost = $340,106,000.00

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Summary

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http://www.pc.gov.au/inquiries/completed/native-vegetation/murweh1

http://www.pc.gov.au/inquiries/completed/native-vegetation/murweh2

http://www.pc.gov.au/inquiries/completed/native-vegetation/murweh3

http://www.pc.gov.au/inquiries/completed/native-vegetation/murweh4

http://www.pc.gov.au/inquiries/completed/native-vegetation/vegetationthickening

http://www.pc.gov.au/inquiries/completed/native-vegetation/submissions/171/sub171.pdf

http://www.pc.gov.au/inquiries/completed/native-vegetation/submissions/dr254/subdr254.pdf

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