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The Australian Rangeland Society

Sustainability and Degradation. An unresolved conflict for low productivity rangeland.

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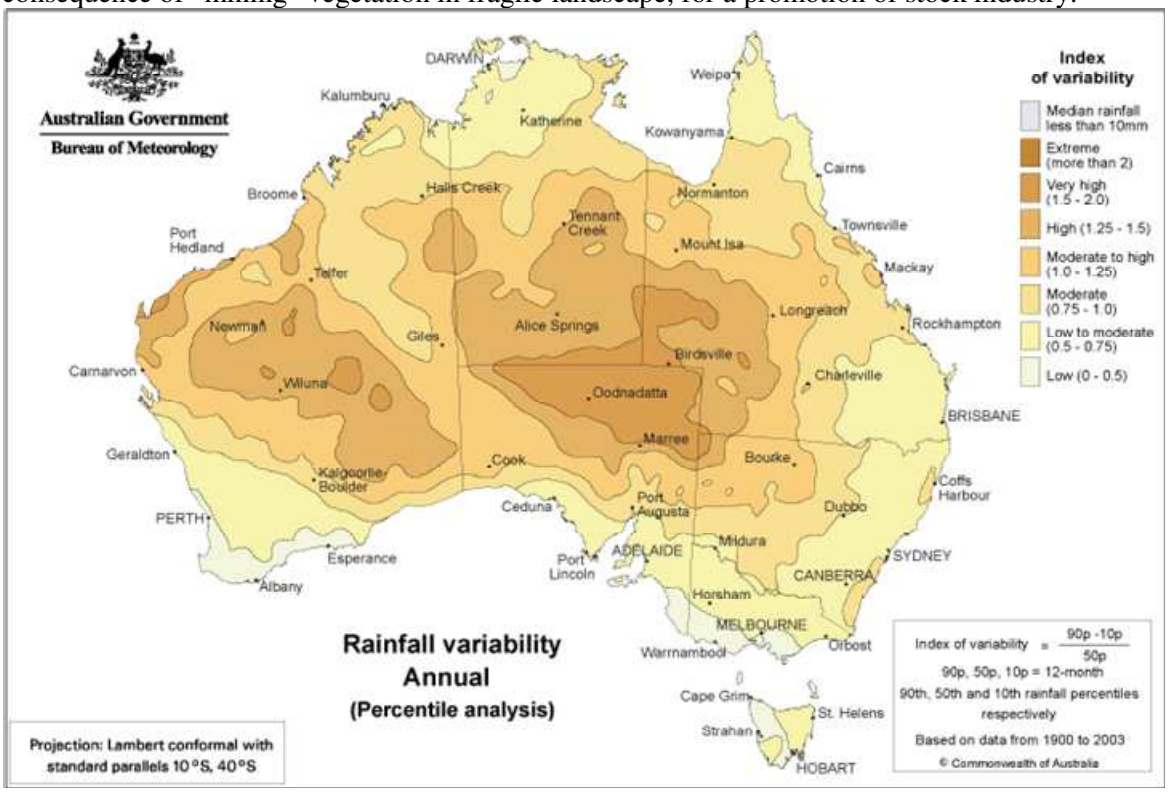
History's bequest

A scarcity of natural surface water and the long established cultural practice of Aboriginal Australia jointly served to protect the rangeland from intense grazing pressure. This protection served to optimise potential for environment stability in environment that is inherently unstable; promoted perennial rather than short-lived plant community and favoured soil formation. With the inception of pastoral industry a New Australia was generally blind to the constraint of climate variability and to the consequence of "mining" vegetation in fragile landscape, for a promotion of stock industry.



In 1858 Frank Gregory explored the Gascoyne district, reporting several good tracts of land but urging a further evaluation of the impact of dry season (Brown. 1999) [1]. Gregory's caution is considered reason why Gascoyne settlement commenced almost two decades after that in the Murchison and the Pilbara.

The Curry *et al.* (1994) [2] Murchison River catchment rangeland survey report explains how pioneer settlers particularly chose the river plains and notes that a minority of more-experienced pastoralists quickly recognised the enormous seasonal variability in the district. Pioneer pastoralist Frank Wittenoom is reported to have said: "The Murchison country is so light carrying that runs were very large. It would be hard to strike the average carrying capacity as in a really good season it would carry a sheep to 2 or 3 acres but in a bad season, 100 acres or more."

Landscape productivity, degradation and grazing business viability

Williams *et al.* [3] in 1974 prepared a desertification case study paper for the 1979 United Nations Desertification Conference in Kenya. Williams recalls how debt funded pastoral industry overreach has predisposed to both financial failure and to desertification nationally. The Gascoyne rangeland is presented as example, albeit aggravated by natural fragility.

Landsberg *et al.* [5] in 1997 describe a changed national landscape: "Prescriptions for better management of Australia's rangelands have long advocated increasing the number and distribution of water points, in order to avoid localised degradation by spreading the impact of grazing by livestock over a wider area. Unfortunately, artificial water points are now so widespread in Australia's semi-arid and arid rangelands that vast areas, previously beyond the reach of large grazing animals, may now be exposed to sustained grazing pressure. It remains to be seen what impact this may have had on the native biota of the rangelands, but our results show that potential reference areas for determining pre-grazing patterns of biodiversity have become extremely rare."

Industry optimism is in practice buoyed by the seasonal recovery that follows drought. Jennings *et al. (1979)* [6] recalled: "The drought in the pastoral areas in the period 1970 to 1977 reduced total sheep numbers south of the Kimberley by proportionately as many as did the severe drought of 1936 even though the stock numbers at the beginning of the 1970 drought were lower. The carrying capacity of the vegetation or pastures must therefore be presumed to be lower today than it was 40 years ago. More importantly, if present stocking policies continue, the capacity of the country to support stock in successive droughts will be reduced as each drought takes its effect." The Jennings public inquiry process facilitated broad community awareness of the poor state of WA rangeland industry and became a spur to the passage of the 1997 Land Administration Act: whereby the Pastoral Lands Board is obliged not to grant grazing lease holdings 'except where the holding stock potential enables a business to be worked as an economically viable and ecologically sustainable unit.' (1997 Act Part 7; Division 3; 101 clause 5 (a).)

McCosker *et al.* [4] in 2010 identifies Northern Australia's beef industry's business poor profitability as a serious matter, - specific reference Kimberley and Pilbara industry - without comment on more parlous prospect in rangeland to the south.

The commercial imperative. No answer to degradation

Whilst the cost of degradation is viewed as only compromising a meagre future financial return, then there is no commercial imperative to reverse degradation.

Kimberley example:

From the late 19th Century cattle numbers in the East Kimberley expanded rapidly, sustained by abundant surface water. Stock fences and constructed water points were few and little control was exercised over cattle distribution. By the 1930's a cattle, feral donkey and bushfire impact exceeded the resilience of the natural ecosystem (particularly in parts of the Nelson, Gordon, Antrim and Elder land systems). (Payne *et al.* 2004) [7]

By 1960 siltation was understood as threat to the storage capacity of Argyle Dam. After an unworkable seven year cooperative rehabilitation effort with lessees in the more severely degraded valley areas, in 1967 government compulsorily acquired the Ord River and Turner pastoral leases and portions of adjoining leases where soil degradation was extreme. A 10,000 km^2 Ord River Regeneration Reserve was proclaimed.

Extensive regenerative cultivation was continued at various levels of intensity from 1960 until the mid 1980's. In 1974 with feral animals eradicated and excluded by effective fences, limited cattle grazing was re-established in the Regeneration Reserve for some 5 years: a counter-productive initiative reaffirming the incompatibility of grazing enterprise with rehabilitation when degradation is severe.

Payne et al. in 2004 [7] & Novelly and Watson in 2007 [8] have described the success of grassland revegetation in the Ord River Regeneration Reserve. A program made critical by the Argyle Dam consideration and in hindsight threatened on several occasions by competing commercial consideration.

Similarly stark improvement was achieved in the west Kimberley between 1971 and 1992. Supported by a Brucellosis and Tuberculosis eradication campaign that achieved a near 50% reduction in recorded stock number in the region and an eradication of feral stock. (BTEC became crucial when disease threatened the nation's access to meat export markets):

Conclusion

The exuberance of the pastoral settlement process encouraged lease development on fragile rangeland. Government and industry paid insufficient attention to the sustainability of the resource and to the reckless manner by which it was exploited.

The 1997 Land Administration Act is outcome of a matured community determination to place our pastoral industry on sustainable footing. The detrimental impact of pasture and soil degradation on the future productive potential of landscape is understood. The nexus between profitable enterprise and competent business management is also appreciated.

Sadly, one essential restorative step has yet to be taken. No rational process of property restructure has been implemented to restore and retire substantially damaged and commercially unviable rangeland. The author attributes this omission to the lingering cultural paradigm that values rangeland principally according to the contemporary commercial valuation. In the language of the economist, this is paradigm that is blind to the natural good of efficient landscape function.

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