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MISSING THE POINT: DESICCATION, HOMOGENISATION AND IMPOVERISHMENT OF AUSTRALIAN RANGELANDS AS LIVING ECOSYSTEMS

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INTRODUCTION

Systematic site-based or visual assessments are generally used to report on the condition of rangelands in Australia. The use of these assessments summarised by area and by land type may hide the seriousness of degradation. This is for two main reasons, firstly 'point-based' assessments frequently miss critical landscape succession issues and secondly, not all areas and types are of equal value (to pastoralism, biodiversity conservation, or any other value system). Yet state of environment reporting continues to promulgate these limited summaries of "condition". Presumably, the data are collected to gather intelligence and affect change and policy, rather than produce reports. If that is the case, then how can decision-makers justify their decisions on such flawed grounds?

Many of the ecologically and economically important landscapes in Australian rangelands are in poor and declining condition, despite the "good news" being promulgated about the rangelands at recent ARS conferences.

The issue impacts on our consciousness at many levels, from the paddock to parliament. Can large areas that appear to be intact, actually be so if smaller, more critical components that make up the matrix are in poor and declining condition? Has the partitioning of catchments with fencing and the installation of artificial watering points - pastoral "development" – been capable of realising the country's potential? Has this in fact led to "de-development"; the loss of potential for those whom we leave our legacy?

Has pastoral "development" in fact been an environmental mining episode of our ancient Gondwanan landscapes? Could a solution within the problem be that land managers are empowered to restructure substantially, to "fit", rather than "fight" the patterns and processes upon which primary production depends? If so, should those institutions that have maintained the *status quo* manage this change process? Could they?

We contend that until more realistic appraisals of rangeland condition and trend are produced and accepted, we will see further decline. The solution will require technical advances, particularly in terms of how we conceptualise and assess rangeland ecosystems. Of perhaps greater importance will be the need for critical man-land relationships to be developed and nurtured at local to catchment scales, as occurs through the resilient Ecosystem Management Understanding (EMU) Project.

UNDERSTANDING RANGELAND DEGRADATION AS A COMPLEX PROCESS AS WELL AS A LEGACY

The condition of the rangelands needs to be redefined to encompass impacts beyond pastoral production (Holmes 1994; Pringle 1998) and to stretch beyond a "driver's seat" view of the

world (Pringle *et al.* in press). Impacts on biodiversity, a range of other heritage values and the related options of future generations need to be treated as issues of at least equal importance to production of meat and fibre. Furthermore, the pathology of rangeland degradation needs reframing to encompass its literal complexity in relation to scale and hierarchy (Ludwig *et al.* 2004). While degradation may be evident from the “driver’s seat”, that is not the scale at which it generally operates (Pringle and Landsberg 2004), nor are the symptoms necessarily coincident spatially with the fundamental causes (Pringle and Tinley 2003).

Rangeland degradation is not just about pasture management. It is a catchment scale issue expressed predominantly in changes in the edaphic environment confronting plant roots seeking moisture and nutrients (Pringle and Tinley 2003; Tinley 2001, 1982). Fundamental problems are often many kilometres away from obvious symptoms and possibly in another paddock, if not another property. Geomorphic drivers initiate or exacerbate the positive feedback cycle of repeated excessive grazing off-take in relation to precipitation, infiltration, soil moisture balance and the quality and quantity of primary productivity to support livestock and other species.

Rangelands are increasingly becoming tiled roofs with effective, clear drain pipes of increasing spatial intensity. This effective draining is characterised by increased run-off, and consequent declining fundamental ecosystem dynamics. Water is not growing plants as it once did because soil moisture balance regimes are affected. At least in Western Australia, pastoral leaseholders are legally obliged to perpetuate pastoralism on lands with little prospect of supporting successful commercial grazing, either sustainably or on the basis of the rainfall lottery (Foran and Stafford Smith 1991).

REFRAMING THE DEGRADATION ISSUE BEYOND PASTURE MANAGEMENT

The essence of the global rangeland degradation problem is that key water-ponding landscapes at all levels of ecosystem (land) organisation are now entrained in a process of etching that is tearing the heart out of the rangelands and reducing the long term equilibrium capacity to support both livestock and native species (Pringle and Tinley 2003; Pringle *et al.* in press; Smyth, James *et al.* 2003). The etching is not simply of the physical landscape, it also affects local economies, community and family; fundamental parts of the fraying rangeland tapestry.

Manipulation of grazing in a more “sustainable” manner (Holecheck *et al.* 1999) will not suffice to address historic degradation and the legacy it leaves incumbent pastoralists (Bastin 1991). Ecologically sound grazing management is of course essential, but in any active catchments, breached hierarchical base levels that control erosion and water ponding, need to be restored (Pringle and Tinley 2003) before suites of landscapes can efficiently conserve and use rainfall and run-on.

Bob Purvis, without any formal scientific training, has realised this and intervened effectively across the triple bottom line (Bastin 1991; Purvis 2004). Fortunately for Bob, most of his land is in the upper sector of the sub-catchment and he does not receive too many problems from up-slope. However, for such innovative intervention to be effective generally will require a cohesive community-based, catchment approach (Murchison Land Conservation District Committee and the Ecosystem Management Unit 2002).

RANGELAND DEGRADATION AS A SOCIAL AND BUREAUCRATIC PHENOMENON

The Murchison LCDC members have acknowledged fundamental geomorphic dysfunction in their catchment and its sub-catchments. With regular support from the Purvis family and sporadic support from EMU members (the EMU Project funding was formally terminated at a meeting of the NHT Rangelands Coordinating Group early in 2005), they are slowly, but systematically turning around the Roderick River sub-catchment as their pilot project. The interesting point about what the Murchison LCDC have gone through is that they first wanted to fence off hundreds of kilometres of the river country to manage total grazing pressure better. They *had* to do EMU to get the funding from NHT (about 40% of total project costs). Through the EMU Project, they quickly saw the fencing as only a part of the solution; they had a catchment out of control and had to pacify it. Only then could they start to restore the most productive bottomlands.

Through the EMU process, a fencing project (“Have you done your section yet?”) turned into a community-based, integrated catchment restoration and management project. When State Government agencies terminated the EMU Project, the community showed resilience and self-sufficiency. Like Bob Purvis, they understood what was wrong – they accepted the legacy they had inherited - and planned to turn the catchment around in their own interests, which included biodiversity conservation. The EMU Project essentially mobilised their existing knowledge and launched them on a new trajectory of interaction, active learning and discussion. It worked! They are *more*, not less active since EMU’s funding was cut. However, there are no more EMU groups being formed.

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