Conservation and the mulgalands of eastern Australia: an unusual case of regrowth

G. Bradd Witt and R.J.S. (Bob) Beeton

School of Integrative Systems, The University of Queensland, Gatton Campus. Email: bwitt@uq.edu.au

Introduction

We outline the key biodiversity conservation issues for the mulgalands of eastern Australia in a contemporary context. The mulgalands are unique because 'regrowth' is not the key to conservation. The biodiversity challenges of the mulgalands are centrally concerned with the restoration of the highly degraded herbaceous component of the vegetation. This can only be achieved with a policy, utilising incentives and active ecosystem management.

Why the mulgalands are unique

Much of terrestrial conservation efforts in Australia focuses on conserving biological diversity and ecological processes in 'fragmented' agricultural landscapes. This is particularly true in a broad arc stretching from south-western Western Australia, to the east and central parts of Queensland where extensive land clearing has occurred with considerable biodiversity impacts. Although the era of broad scale clearing is ending, policy, regulations and conservation efforts remain focused on 'regrowth' and improving the 'connectivity' of remnant and regrowth vegetation in these landscapes.

The mulgalands[1] of eastern Australia are to the north and west of the agricultural development arc. They have suffered considerable degradation from historic total grazing pressure by domestic, feral and native herbivores. This has been aggravated by the dominant Mulga (*Acacia aneura*) being an important source of feed for cattle and sheep. For over 100 years graziers have utilised Mulga as a source of feed by cutting it down to make it available for their stock. This practice has many names but is now generally known as 'fodder harvesting'. Over the years, methods of fodder harvesting have changed.

This practice is not considered as clearing by the landholder for two key reasons:

- regrowth from seed of Mulga is vigorous and anticipated; and
- Mulga regeneration is considered desirable as it then provides for fodder at a later date when conditions become dry again.

The distinction here between conventional land clearing and fodder harvesting is important to explore. Fodder harvesting requires considerable skill and experience to achieve an appropriate balance between too much Mulga regeneration and too little. Either too much or too little Mulga locks up herbaceous recovery, which is also influenced by rainfall patterns and grazing management. Grazing management and a mix of cattle and sheep results in a new 'crop' of Mulga somewhere between 10 and 20 years (Page *et al.* 2008). Consequently loss of Mulga is considered undesirable. An important confounding issue here is the variance in perceptions of what was, or should be, the 'natural' state of vegetation for the mulgalands.

Too many trees?

'Regrowth' and 'thickening' have been controversial topics (Beeton *et al.* 2005). The expressed historical narrative of vegetation changes is that the widespread introduction of sheep and cattle in the middle of the 19th century led to a dramatic collapse of ground cover and perennial grasses, which in concert with the removal of indigenous fire management resulted in a widespread increase in shrub and tree cover (i.e. thickening) (Witt *et al.* 2009). Thus, the increased woody component of the vegetation then suppressed opportunity for vigorous herbage growth and has locked the system into a new relatively stable state of woody dominance rather than the more open systems believed to be in place prior to the period between 1850 and

Typical dense Mulga stand resulting from regeneration following fodder harvesting several decades earlier. Photo: G.B. Witt, 2006

1 It should be noted that other plant associations occur in patches throughout the Mulgalands and are not subject to the arguments present here.

1900. The collapse of the semi-arid grazing systems was most pronounced at the time of the 'Federation drought' when sheep and cattle numbers were at historically high levels. This combined with the rapid spread of rabbits devastated the standing biomass.

This is the key conservation issue for the mulgalands. The decline in herbaceous ground cover due to grazing, removal of fire and competition with woody vegetation (in combination with the predation of cats and foxes) has most likely been the greatest contributor to the loss of biological diversity and ecological processes that maintain functionality, conserve nutrients and resources in the mulgalands. Loss of habitat through the clearing of woody vegetation is not a significant issue with the exception of some areas in the east and south-east of the region where a problem occurred during the late 1990s to early 2000s with the 'panic' and irrational clearing that preceded Queensland Government legislation to restrict clearing on freehold land.

The 'real' challenges for conservation in the mulgalands

For understandable reasons, 'regrowth' is usually implicitly considered desirable from a biodiversity point of view. In addition, it is frequently constrained to a discourse around trees. In the mulgalands of eastern Australia, it is not the regrowth of trees that is the central biodiversity conservation issue but rather the 'regrowth', or perhaps more accurately the restoration, of herbaceous cover and ecological function at the soil/herbaceous scale, that is paramount. Notwithstanding this, the current 'state' of the mulgalands is in all likelihood relatively stable (Witt *et al.* 2006) given climatic fluctuations. So it is a matter of choice for society if it desires to shift the mulgalands from a stable, yet probably undesirable biodiversity state to another state which is ecologically more responsive and resilient, with improved carbon content in the soil, and able to provide a greater range of biodiversity.

Restoring the 'natural' herbaceous layer through a policy framework that encourages and rewards land management geared to this end should be the challenge. It is also important to note that passive management (such as removal of domestic stock) on the assumption that the system will restore itself to some 'natural state' has been demonstrated to be ineffective. Removal of stock alone, with no active control of other grazing pressure, and with no active management of the vegetation, leaves these systems no better off than under a conservative grazing regime.

Policy to achieve better conservation outcomes for the mulgalands therefore should allow for a range of manipulative practices also including clearing, managing total grazing pressure, and the use of fire to keep an appropriate balance between woody and herbaceous vegetation (Beeton *el al*. 2005). This is in contrast to the focus to date which has tended to be on the restriction of activities, rather than the facilitation of desirable outcomes in culturally modified landscapes.

Perhaps we need to broaden the discourse of 'regrowth'—which it could be argued is a very southern Australian centric issue—to 'restoration', to avoid the preoccupation with trees as a surrogate for biodiversity.

References

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Mulga harvested for fodder in the dry period between 2001 and 2005. Photo: M.V. Noël, 2008