

Conservation grazing management in the sub-humid region of central Queensland

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The pastoral lands of the sub-humid region of Queensland are generally stable and evidence of soil erosion slight. However, in the upper Nogoia River catchment, a combination of unstable parent material (Palaeozoic Drummond Basin sediments - quartzose sandstones and mudstones) and land use practices such as indiscriminant burning and overgrazing have resulted in extensive sheet and gully erosion.

Shallow texture contrast soils support an open eucalypt woodland with mid-height grasses such as *Heteropogon contortus*, *Bothriochloa ewartiana*, *Themeda australis* and *Aristida* spp. Average annual rainfall is 687 mm and is summer-dominant.

Since 1977, the effects of grazing on pasture composition, basal area and litter have been monitored at Medway Station, Emerald. Four paired transects were established and sampled twice-yearly. The results of monitoring are as follows:

		1977-78	1978-79	1979-80
% Basal Area	- Grazed	2.0	2.2	2.1
	Ungrazed	2.2	2.5	2.2
% Litter	- Grazed	51	51	58
	Ungrazed	50	48	49
% Bare Ground	- Grazed	47	47	40
	Ungrazed	48	50	49

Initial results show that percentage litter has increased under the grazed condition, resulting in a decrease in percentage bare ground. However, the results for individual transects are quite variable. There was no consistent trend with any of the parameters under the ungrazed condition, or basal area under the grazed condition. Similarly *Bothriochloa ewartiana*, which is a useful indicator of pasture condition, has not shown any consistent trend over time. This is probably due to the highly favourable weather conditions over the recorded period.

These pastures are in poor condition relative to those to the immediate north west, where the landscape is derived from partially stripped Tertiary sediments and erosion gradients are low. Figures of 3.6%

(basal area) and 46% (litter) have been recorded in these stable lands (1).

Concurrently, runoff and soil losses have been measured at Medway. Measurements using erosion pins revealed that greater soil movement occurred within the grazed catchment than the ungrazed one (Ciesiolka, unpub. data).

Pressland (pers. comm.) has established a relationship between runoff and basal area in the arid mulga lands and considers a perennial grass cover of more than 2% necessary to reduce soil movement and erosion. This emphasises the need to maintain a protective grass cover in this more mesic, unstable region.

Monitoring for a range of climatic conditions and management practices is being continued by S.E. MacNish, Q.D.P.I. This is necessary before conservation grazing management guidelines can be formulated for this particular region.

1. Turner, E.J. 1979. Qd Dep. Prim. Ind. Div. Ld Util. Report 79/2.