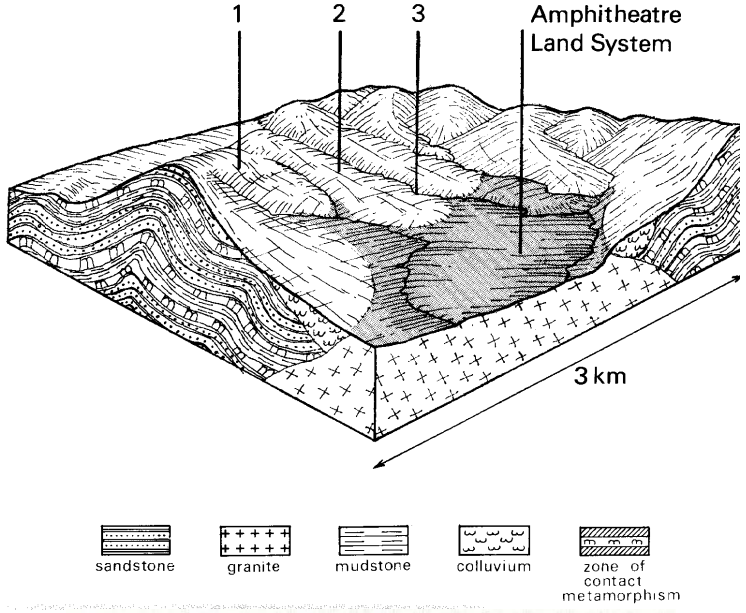
7.22 Sugarloaf land system

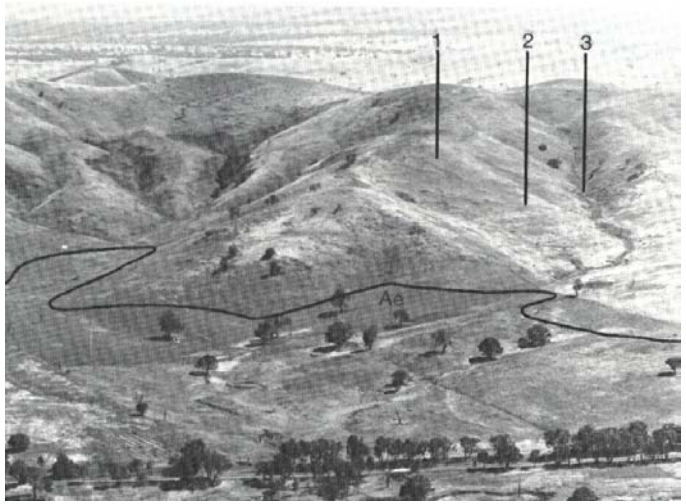
Steep metamorphic aureoles south of Amphitheatre have mostly been cleared. Small timber reserves indicate that the original community was an open forest in which *Eucalyptus macrorhyncha* predominated.

The dominant land use is grazing, but productivity has remained low because of difficulty of access for pasture improvement, together with low potential productivity of the shallow stony soils.

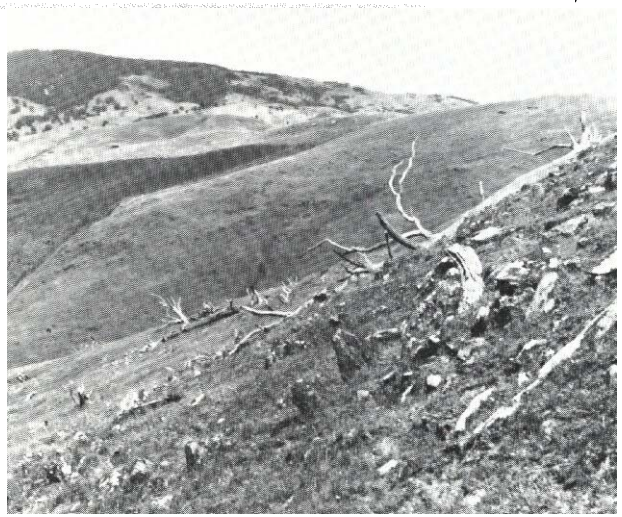
The steep slopes are prone to sheet erosion and the drainage lines to gully erosion, while increasing run-off leads to problems of erosion and deposition on adjacent better-quality land. Increased infiltration has mobilised soluble salts in the sedimentary rock, resulting in saltpans and saline seeps on the lower slopes and in the drainage lines. Vegetation and soil stability are adversely affected.

In comparison with the land on metamorphic aureoles in the north, the Sugarloaf land system has a higher rainfall and a longer growing season. Although the sheet erosion hazard may be less, the mobilisation of soluble salts may be considerably higher.





Sugarloaf land system includes some of the steepest cleared land in the catchment.



Annual grasses have low productivity and do not adequately protect the shallow soils against water erosion.

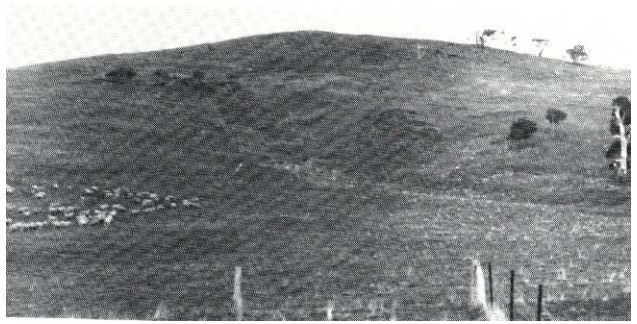
SUGARLOAF LAND SYSTEM Area37sq.km

CLIMATE			
Rainfall (mm)	Annual, 625-700; lowest January (32), highest August (70)		
Temperature (^{0}C)	Annual, 13; lowest July (8), highest February (20)		
Seasonal growth limitations	Temperature: less than 10 C (av.) June-August Rainfall: less than potential evapotranspiration September- April		
GEOLOGY			
Age, lithology	Ordovician sandstone and mudstone		
PHYSIOGRAPHY			
Elevation range (m)	340-480		
Relative relief (m)	20		
Drainage pattern	Dendritic		
Drainage density (km/ sq. k m)	1.1		
Land form	Hill (metamorphic aureole)		
LAND COMPONENT	1	2	3
Percentage of land system	80%	15%	5%
PHYSIOGRAPHY	Upper and middle slope	Lower slope	Drainage floor
Position on land form			
Slope (typical) and range (%)	30, 10-35	15,10-20	3,2-5
Slope shape	Convex	Linear	Linear
NATIVE VEGETATION			
Structure	Open forest	Open forest	Open forest
Dominant species	*E. macrorhyncha* *E. polyanthemos* *E. goniocalyx*	*E. dives* *E. obliqua* *E radiata*	*E. dives* *E. obliqua* *E. radiata*
SOIL	Sandstone and mudstone	Sandstone and mudstone	Recent alluvium
Parent material			
Description	Shallow stony uniform loam soils	Stony red gradational soils	Sandy uniform loam soils overlying compact gravelly layer
Classification	Urn 5.21 - 3/1/020	Gn 3.14 - 3/1/010	Um 1.21 2/1/030
Surface texture	Stony loam	Stony loam	Sandy loam
Surface consistence (dry)	Soft	Slightly hard	Slightly hard
Depth (m)	0-0.1	0. 1 ~0. 5	0-1-0.5
Nutrient status	Very low throughout	Very low throughout	Low throughout
Available soil water capacity	Very low throughout	Low throughout	Low
Perviousness to water	Rapid	Moderate	Rapid
Drainage	Excessively drained	Well drained	Poorly drained
Exposed stone	Abundant	Moderate	Nil
Dispersibility	Nil	Nil	Nil
Slaking tendency	Nil	Low	Low
PRESENT LAND USE	Grazing	Grazing	Grazing

Land deterioration hazards - Sugarloaf land system

Disturbance	Component	Affected process and trend	Primary resultant deterioration		Primary resultant off-site process
			Form	Susceptibility	
Altered vegetation -reduced leaf area, rooting depth, perenniality	1,2	Reduced transpiration, increased leaching, deep percolation	Nutrient decline	Low	Movement of water and salts to groundwaters
Reduced soil surface cover	1,2	Increased soil detachment	Sheet erosion	High	Increased flash flows and sediment loads
	1	Increased soil detachment	Landslips	Low	Increased flash flows and sediment loads
Increased trafficking, trampling	1,2	Increased soil compaction	Structure decline	Low	Increased flash flows and sediment loads
Increased soil disruption and run-on	3	Increased subsoil detachment	Gully erosion	Moderate	Increased flash flows and sediment loads

The steep cleared slopes are highly susceptible to sheet erosion.



Some areas have become unstable after clearing, resulting in small landslips.