

7.6 Buckrabanyule land system

Gently undulating plains on granite between Yeungroon and Buckrabanyule have soils modified by the accession of calcareous dust.

The duplex soils on the upper slopes originally supported open woodlands dominated by *Eucalyptus microcarpa*, whereas *Casuarina luehmannii* was prominent on the clay soils of the lower slopes. The whole area is now intensively cropped to cereals, with minor grazing.

The area is inherently sensitive to deterioration and the hazards are being realised under the intensive use, with consequent adverse hydrological effects on lower lands.

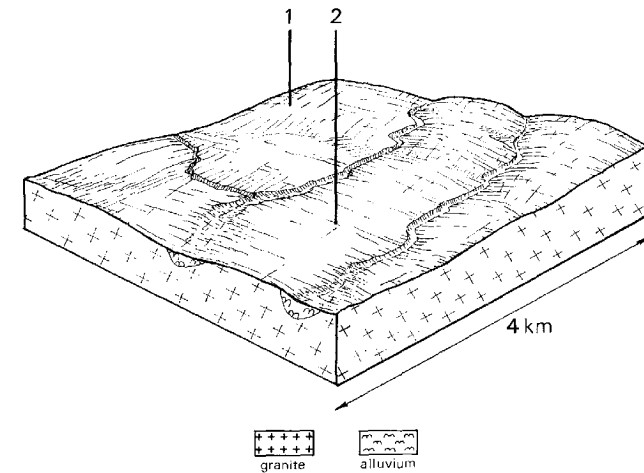
The upper slopes are particularly prone to gully and sheet erosion. Gullies are prominent in the drainage lines, aggravated by run-off from the adjacent rocky hills, which have been excessively cleared and grazed. Gully dimensions are increasing steadily, promoted by the high slaking tendency of the soils.

Intensive use has compacted the surfaces, which had inherently weak structure, and surface sealing is noticeable on the clay soils of the lower slopes. These slopes are also affected by deposition of material from the eroding gullies.

This area, used predominantly for cropping, slopes gently away from steep granitic hills. Gully erosion (right) is common on the upper slopes.



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BUCKRABANYULE LAND SYSTEM Area 113 sq. km

CLIMATE Rainfall (mm) Temperature (°C) Seasonal growth limitations	Annual, 400-425; lowest January (18), highest June (49) Annual, 15; lowest July (8), highest February (22) Temperature: less than 10 ⁰ C (av.) June-August Rainfall: less than potential evapotranspiration September-April	
GEOLOGY Age, lithology	Quaternary aeolian calcareous deposits overlying Ordovician granite	
PHYSIOGRAPHY Elevation range (m) Relative relief (m) Drainage pattern Drainage density (km/ sq. km) Land form	140-200 5 Radial 0.4 Alluvial apron	
LAND COMPONENT Percentage of land system	1 50%	2 50%
PHYSIOGRAPHY Position on land form Slope (typical) and range (%) Slope shape	Upper slope 3, 1-5 Linear	Lower slope 1,1-2 Linear
NATIVE VEGETATION Structure Dominant species	Open woodland <i>E. microcarpa</i> <i>Casuarina luehmannii</i>	Open woodland <i>Casuarina luehmannii</i>
SOIL Parent material Description Classification Surface texture Surface consistence (dry) Depth (m) Nutrient status Available soil water capacity Perviousness to water Drainage Exposed stone Dispersibility Slaking tendency	Site 928 Calcareous aeolian material and granite Red calcareous sodic duplex soils Dr 2.23-3/1/041 Loam Slightly hard >2 Moderate throughout Low topsoil, moderate subsoil Moderate Well drained Nil Moderate High	Site 929 Calcareous aeolian material and granite Reddish brown calcareous sodic uniform clay soil Ug 6.10-5/2/000 Light clay Moderately hard >2 High throughout Moderate throughout Moderate Moderately well drained Nil Moderate High
PRESENT LAND USE	Cropping, grazing	Cropping, grazing

Land deterioration hazards - Buckrabanyule 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	Nutrient decline	Moderate	Movement of water and salts to groundwaters
	2	Reduced transpiration	Waterlogging in micro-relief depressions	Low	
Reduced soil surface cover	1	Increased soil detachment	Sheet erosion	High	Increased flash flows and sediment loads
	1,2	Increased soil detachment	Windsheeting	Low	
Cultivation, increased trafficking, trampling	1	Increased soil compaction	Structure decline	Low	Increased flash flows and sediment loads
	2	Increased soil compaction	Structure decline	Moderate	Increased flash flows and sediment loads
Increased soil disruption and run-on from adjacent hills	1	increased subsoil detachment	Gully erosion	High	Increased flash flows and sediment loads



Increased run-off from adjacent hills does cause severe gully erosion on the upper slopes in soils that have a high slaking tendency.



The ridge of sandy material along the fence-line indicates the extent of wind erosion over the years.