

7.5 Berrimal land system

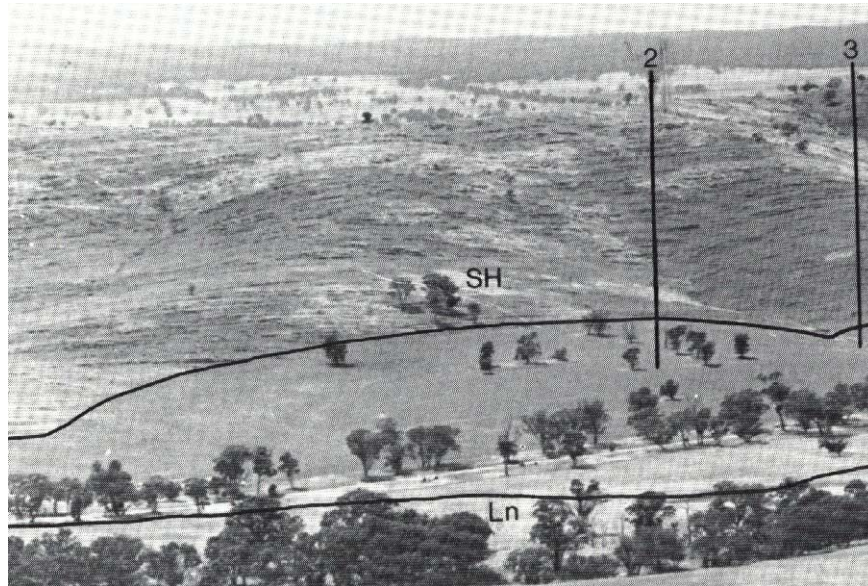
Gently sloping alluvial fans form aprons at the base of metamorphic aureoles in the Coonooer Bridge-Wehla area.

Red sodic duplex soils predominate. Fertility is moderate, but the water-holding capacity is restricted by a shallow siliceous hardpan formed by Tertiary weathering.

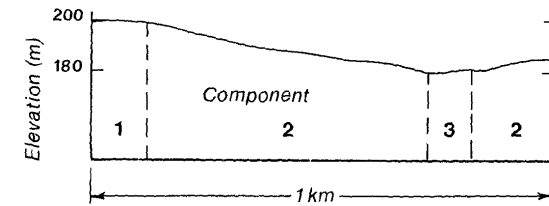
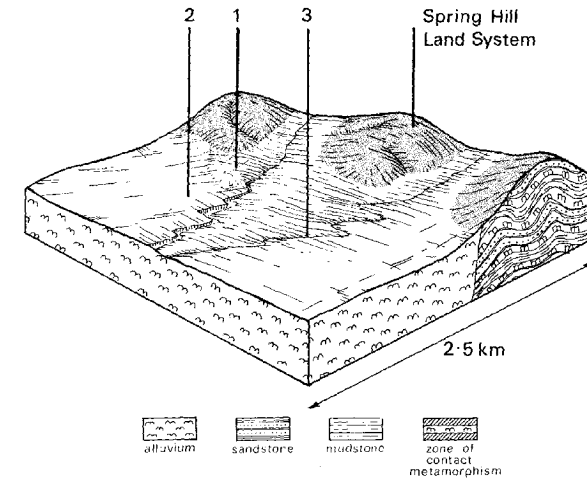
The upper slopes have shallow soils overlying an ironstone sheet that hinders cultivation and water-holding capacity. Phosphorus fixation is also a problem when superphosphate is applied. The sheet erosion hazard is extremely high.

The area has been almost completely cleared, with only occasional eucalypts - *E. microcarpa* or *E. leucoxyton* - remaining. The land is now used for both cropping and grazing, although the upper slopes are restricted to grazing.

The most obvious form of land deterioration is gully erosion in the drainage lines receiving increased water flow from the adjacent cleared hills. The soils are highly dispersible and slake readily.



The alluvial apron slopes gently away from the steep metamorphic aureole.



BERRIMAL LAND SYSTEM Area 88sq.km

CLIMATE Rainfall (mm) Temperature (°C) Seasonal growth limitations	Annual, 400-500; lowest January (20), highest June (59) Annual, 15; lowest July (8), highest February (21) Temperature: less than 10° C (av.) June-August Rainfall: less than potential evapotranspiration September- April		
GEOLOGY Age, lithology	Tertiary alluvium		
PHYSIOGRAPHY Elevation range (m) Relative relief (m) Drainage pattern Drainage density (km/ sq. km) Land form	160-280 5 Parallel 0.9 Alluvial apron		
LAND COMPONENT Percentage of land system	1 20%	2 70%	3 10%
PHYSIOGRAPHY Position on land form Slope (typical) and range (%) Slope shape	Highest level 10, 8-12 Convex	Upper and lower slope 5, 4-7 Linear	Drainage floor 1, 0-1 Concave
NATIVE VEGETATION Structure Dominant species	Woodland <i>E. polyanthemos</i> <i>E. microcarpa</i> <i>E. leucoxydon</i>	Open woodland <i>E. leucoxydon</i> <i>E. microcarpa</i>	Woodland <i>E. microcarpa</i> <i>E. leucoxydon</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	Alluvium Shallow stony red gradational soils overlying sheet ironstone Gn 4.11 - 4/1/005 Clay loam Moderately hard 0-1-0.5 Very low Very low Slow Excessively drained Moderate Low Nil	Alluvium Red sodic duplex soils overlying siliceous hardpan Dr 2.41 - 2/1/012 Fine sandy loam Slightly hard 1-1.5 Low surface, moderate subsoil Low surface, moderate subsoil Slow Well drained Nil High High	Alluvium Yellow sodic duplex soils, coarsely structured, overlying siliceous hardpan Dy 3.41 - 3/1/010 Sandy loam Slightly hard >2 Low surface, moderate subsoil Low surface, moderate subsoil Slow Poorly drained Nil High High
PRESENT LAND USE	Grazing	Cropping, grazing	Cropping, grazing

Land deterioration hazards - Berrimal 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	2	Reduced transpiration, increased leaching	Nutrient decline	Moderate	Movement of water and salts to groundwaters Movement of water and salts to groundwaters
	3	Reduced transpiration, increased leaching	Nutrient decline	Low	
Reduced soil surface cover	1,3	Increased soil detachment	Sheet erosion	High	Increased flash flows and sediment loads Increased flash flows and sediment loads
	2	Increased soil detachment	Sheet erosion	Moderate	
Cultivation, increased trafficking, trampling	1,2,3	Increased soil compaction	Structure decline	Low	Increased flash flows and sediment loads
Increased soil disruption	2	Increased soil detachment	Gully erosion	Low	Increased flash flows and sediment loads
Increased soil disruption and run-on	3	Increased subsoil detachment	Gully erosion	High	Increased flash flows and sediment loads
Raised water table	3	Increased evaporation	Soil salting	Low	Increased salinity in surface waters



Gully-head structures and regular removal of sediment are usually needed on roads crossing major drainage floors



When intensiveness of land use exceeds land capability, visible signs of deterioration soon occur