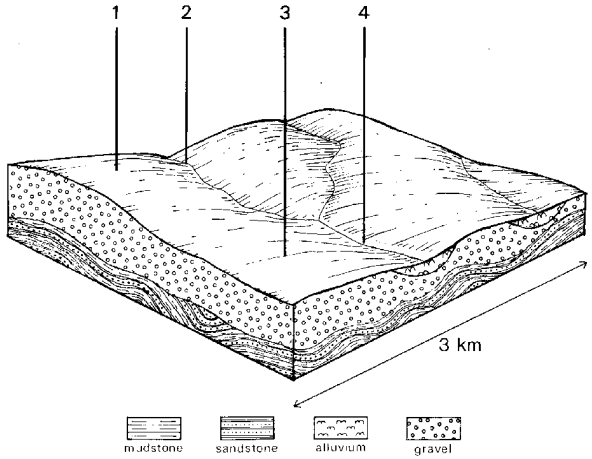
7.11 Glenlogie land system

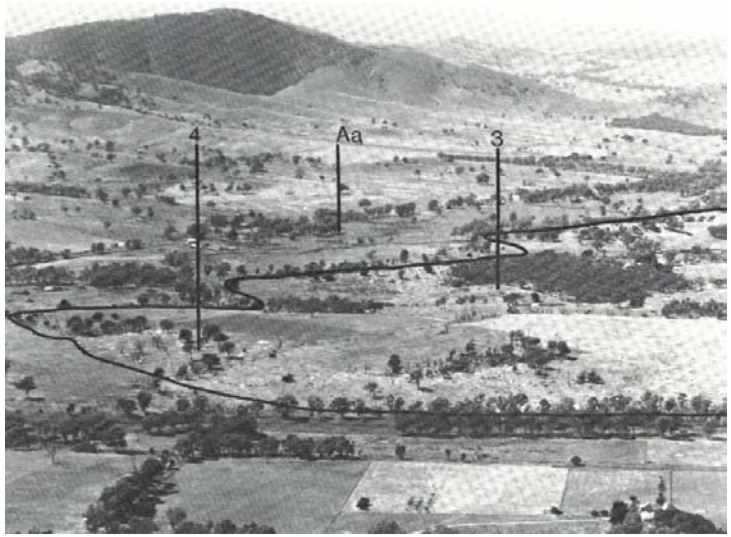
South of Avoca, water-worn quartz gravels deposited in Tertiary times have been dissected to form isolated low hills.

Old soils of low fertility predominate, mainly as mottled duplex soils with finely structured B horizons underlain by siliceous hardpans.

The vegetation is a characteristic straggly, heathy woodland dominated by *Eucalyptus macrorhyncha.* Only small areas have been cleared because of the low soil fertility. However, the gravels are of considerable value as road-making material.

The greatest hazard would appear to be increased soil salting within and beyond the land system should the native trees be removed. Reduced cover on the erodible fine sandy loam topsoils also constitutes a serious hazard of sheet erosion and increased flash flows to lower sites.
At present severe erosion is occurring on gravel-stripped sites and this affects adjacent drainage lines. The slowly permeable siliceous hardpan increases lateral flow into the drainage lines; however, the depth of gullying is limited by the hardpan itself.





The low agricultural potential of this land system is directly related to the extremely low nutrient status of the old river gravel deposits.

The heathy woodland has a characteristic straggly appearance.

GLENLOGIE LAND SYSTEM Area 17 sq. km

CLIMATE				
Rainfall (mm)	Annual, 625-700; lowest January (32), highest August (70)			
Temperature (^{0}C).	Annual, 14; lowest July (8), highest February (20)			
Seasonal growth limitations	Temperature: less, than 10^{0}C (av.) June-August 'Rainfall: less than potential evapotranspiration September-April			
GEOLOGY				
Age, lithology	Tertiary river gravel and Quaternary alluvium			
PHYSIOGRAPHY				
Elevation range (m)	280-360			
Relative relief (m)	10			
Drainage pattern	Dendritic			
Drainage density (km/sq. km)	1.0			
Land form	Undulating plain			
LAND COMPONENT	1	2	3	4
Percentage of land system	40%	5%	45%	10%
PHYSIOGRAPHY	Crest and upper slope	Upper drainage floor	Lower slope	Lower drainage floor
Position on land form				
Slope (typical) and range (%)	10, 6-12	3, 2-4	2, 1-4	1, 0-3
Slope shape	Convex	Concave	Convex	Concave
NATIVE VEGETATION				
Structure	Heathy woodland	Tall open forest	Heathy woodland	Open forest
Dominant species	*E. macrorhyncha* *E. goniocalyx* *E. polyanthemos*	*E. globulus* *E. rubida*	*E. goniocalyx* *E. macrorhyncha* *E. rubida*	*E. melliodora* *E. camaldulensis*
SOIL			Site 907	
Parent material	Fluviatile gravelly deposits	Alluvium	Fluviatile gravelly deposits	Alluvium
Description	Mottled reddish yellow duplex soils, finely structured, overlying siliceous hardpan	Stony red duplex soils	Mottled reddish yellow duplex soils, finely structured, overlying siliceous hardpan	Yellow sodic duplex soils
Classification	Dy 3.41-3/0/015	Dy 3.41-3/1/010	Dy 5.41-1/0/030	Dy 3.32-3/1/005
Surface texture	Gravelly loam	Gravelly loam	Fine loamy sand	Fine sandy loam
Surface consistence (dry)	Soft	Slightly hard	Soft	Slightly hard
Depth (m)	0.1-0.5	0.5-1	1-1.5	1-1.5
Nutrient status	Very low surface, low subsoil	Low surface, moderate subsoil	Very low surface low subsoil	Low surface, moderate subsoil
Available soil water capacity	Low surface, moderate subsoil	Low surface, moderate subsoil	Low surface, moderate subsoil	Low surface, moderate subsoil
Perviousness to water	Slow	Slow	Slow	Slow
Drainage	Somewhat excessively drained	Somewhat poorly drained	Somewhat excessively drained	Poorly drained
Exposed stone	Moderate	Common	Slight	Nil
Dispersibility	Nil	Moderate	Nil	Moderate
Slaking tendency	High	Low	High	Low
PRESENT LAND USE	Gravel extraction	Grazing	Gravel extraction	Grazing

Land deterioration hazards -- Glenlogie 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	1,3	Decreased transpiration, increased leaching	Nutrient decline	Low	Movement of water to groundwaters
Reduced soil surface cover	1,2,4	Increased soil detachment	Sheet erosion	Moderate	Increased flash flows and sediment loads
	3	Increased soil detachment	Sheet erosion	Low	Increased flash flows and sediment loads
Cultivation, increased trafficking, trampling	1,3	Increased soil compaction	Structure decline	Low	Increased flash flows and sediment loads
	2,4	Increased soil compaction	Structure decline	Moderate	Increased flash flows and sediment loads
Increased soil disruption and run-on	2	Increased subsoil detachment	Gully erosion	Moderate	Increased flash flows and sediment loads
	4	Increased subsoil detachment	Gully erosion	Low	Increased flash flows and sediment loads
Raised water table	2	Increased evaporation	Soil salting	Low	Increased salinity of surface waters
	4	Increased evaporation	Soil salting	Moderate	Increased salinity of surface waters

A rising saline water table, has caused soil salting, and subsequent low pasture production.

The rather straggly appearance of these gravelly areas deteriorates further when they are used as rubbish dumps.