7.8 Dalyenong land system

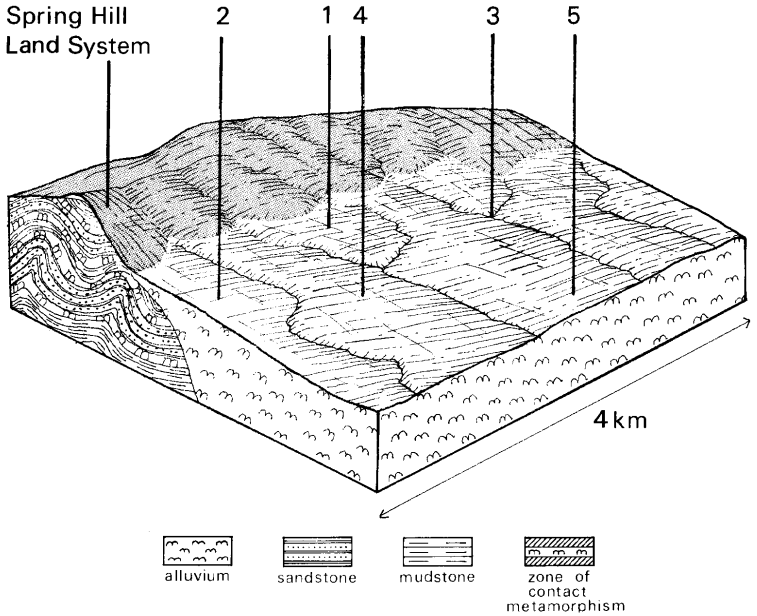
Gentle alluvial aprons beside the high metamorphic aureoles between Archdale and Carapooee have been dissected. Small remnants of a lateritic surface on the highest levels have shallow soils overlying a massive ironstone sheet. Elsewhere, siliceous hardpans occur at depth.

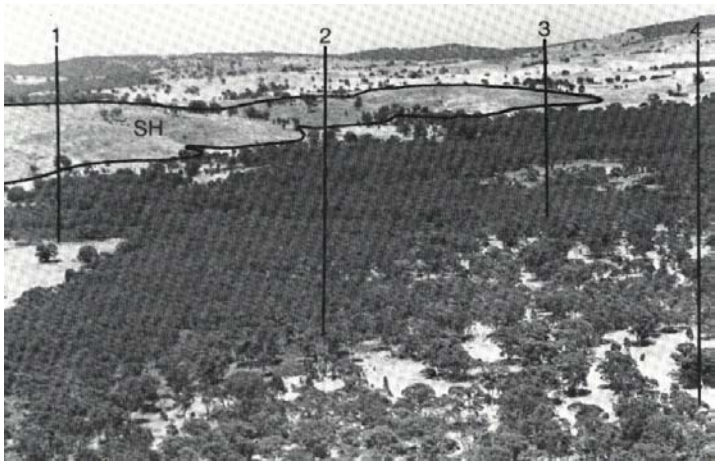
Most of the upper slopes have old mottled duplex soils. A low heathy woodland of *Eucalyptus goniocalyx* and *E. polyanthemos* indicates low fertility. On the middle and lower slopes duplex soils with considerable ironstone gravel support a woodland of predominantly *E. microcarpa*. In the drainage lines, shallow hardpans aggravate the gullying process but limit the depth of incision.

Some areas have been cleared for grazing on the upper slopes and cropping on the lower slopes; however, low fertility and unstable topsoils restrict the agricultural potential.

Excessive clearing leads to soil salting on the lower slopes and drainage lines, and increased movement of salts to underground waters.

Dalyenong, Berrimal and Percydale are land systems with the same land form occurring in the same locality, but they differ in annual rainfall, vegetation and proportion of major soil types.





The low agricultural potential of this land system has allowed large areas to remain uncleared.

Woodland vegetation on the lower slopes not cleared for pastures is selectively logged for firewood and fence posts.

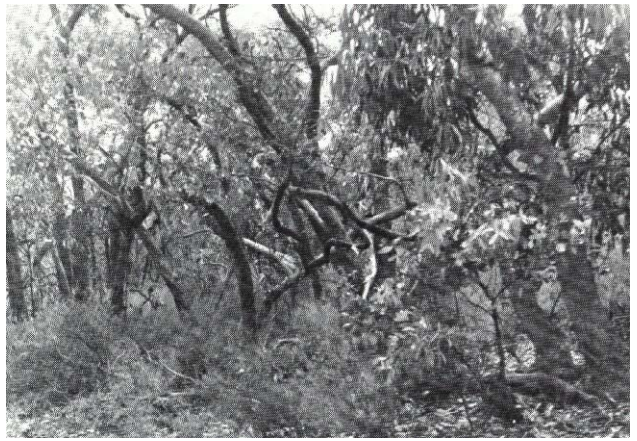
DALYENONG LAND SYSTEM Area 111 sq. km

CLIMATE					
Rainfall (mm)	Annual, 440-500; lowest January (22), highest August (59)				
Temperature (^{o}C)	Annual, 15; lowest July (8), highest February (2 1)				
Seasonal growth limitations	Temperature: less than ^{100C}(av.)June-August Rainfall: less than potential evapotranspiration September-April				
GEOLOGY					
Age, lithology	Tertiary alluvium				
PHYSIOGRAPHY					
Elevation range (m)	200-280				
Relative relief (m)	5				
Drainage pattern	Parallel-dendritic				
Drainage density (km/sq. km)	1.6				
Land form	Alluvial apron				
LAND COMPONENT	1	2	3	4	5
Percentage of land system	5%	25%	5%	35%	30%
PHYSIOGRAPHY					
Position on land form	Highest level	Upper slope	Drainage floor	Middle slope	Lower slope
Slope (typical) and range (%)	1, 0-1	5, 2-6	2, 1-3	3, 1-4	1, 0-1
Slope shape	Linear	Convex	Concave	Linear	Linear
NATIVE VEGETATION					
Structure	Woodland	Heathy low woodland	Woodland	Woodland	Woodland
Dominant species	*E. macrorhyncha* *E. polyanthemos* *E. goniocalyx*	*E. goniocalyx* *E macrorhyncha*	*E. microcarpa* *E. leucoxylon* *E .melliodora*	*E. microcarpa* *E. leucoxylon* *Casuarina luehmannii*	*E. microcarpa* *E leucoxylon* *Casuarina luehmannii*
SOIL		Site 920	Site 923	Site 921	Site 922
Parent material	Alluvium	Alluvium	Alluvium	Alluvium	Alluvium
Description	Red gradational soils overlying sheet ironstone	Mottled red duplex soils overlying siliceous hardpan	Yellow sodic duplex soils overlying siliceous hardpan	Red sodic duplex soils with ironstone, overlying siliceous hardpan	Reddish brown sodic duplex soils, overlying siliceous hardpan
Classification	G n 4.11- 4/1/.005	Dr 5.21-1/0/030	Dy 3.42---2/1/038	Dr 3.42-2/1/021	Dr 2.31-2/1/009
Surface texture	Clay loam	Loamy sand	Sandy loam	Sandy loam	Sandy loam
Surface consistence (dry)	Moderately hard	Soft	Soft	Moderately hard	Moderately hard
Depth (m)	0.1-0.5	0.5-1	0.5-1	1-1.5	1-1.5
Nutrient status	Very low throughout	Very low throughout	Very low surface, moderate subsoil	Very low surface, moderate subsoil	Low surface, moderate subsoil
Available soil water capacity	Very low throughout	Low surface, moderate subsoil	Low surface, moderate subsoil	Low surface, moderate subsoil	Low surface, moderate subsoil
Perviousness to water	Slow	Slow	Slow	Moderate	Moderate
Drainage	Excessively drained	Well drained	Somewhat poorly drained	Well drained	Moderately well drained
Exposed stone	Common	Abundant	Nil	Common	Common
Dispersibility	Nil	High	High	Low	Moderate
Slaking tendency	Low	High	Moderate	Low	Low
PRESENT LAND USE	Protection forestry,	Protection forestry, grazing	Cropping, grazing	Cropping, grazing	Cropping, grazing

Land deterioration hazards - Dalyenong 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	1,2,3	Reduced transpiration, increased leaching	Nutrient decline	Low	Movement of water and salts to groundwaters
	4,5	Reduced transpiration, increased leaching	Nutrient decline	Moderate	Movement of water and salts to around waters
Reduced soil surface cover	1,2,3	Increased soil detachment	Sheet erosion	High	Increased flash flows and sediment loads
	4,5	Increased soil detachment	Sheet erosion	Moderate	Increased flash flows and sediment loads
Cultivation, increased trafficking, trampling	1,2	Increased soil compaction	Structure decline	Low	Increased flash flows and sediment loads
	3,4,5	Increased soil compaction	Structure decline	Moderate	Increased flash flows and sediment loads
Increased soil disruption	2	Increased subsoil detachment	Gully erosion	Low	Increased flash flows and sediment loads
	4	Increased subsoil detachment	Gully erosion	Moderate	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
	5	Increased evaporation	Soil salting	Moderate	Increased salinity of surface waters
Raised water table	3	Increased evaporation	Soil salting	High	Increased salinity of surface waters

Active gully erosion removes soil, dissects farmland and lowers land capability.



Heathy woodland, characteristic of the vegetation that grows on soils of very low nutrient status.