

7.8 Dalyenong land system

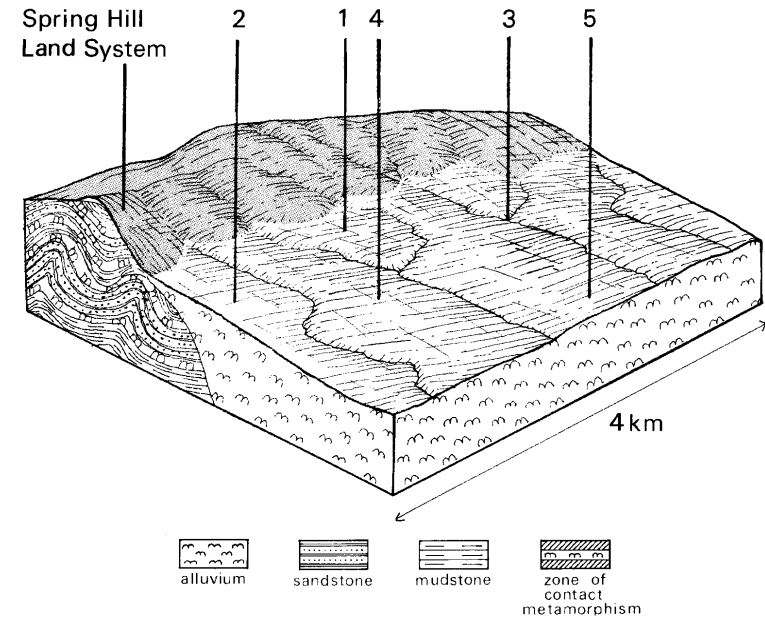
Gentle alluvial aprons beside the high metamorphic aureoles between Archdale and Carapooee have been dissected. Small remnants of a lateritic surface on the highest levels have shallow soils overlying a massive ironstone sheet. Elsewhere, siliceous hardpans occur at depth.

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) Temperature (°C) Seasonal growth limitations	Annual, 440-500; lowest January (22), highest August (59) Annual, 15; lowest July (8), highest February (2 1) Temperature: less than 100°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	200-280 5 Parallel-dendritic 1.6 Alluvial apron				
LAND COMPONENT Percentage of land system	1 5%	2 25%	3 5%	4 35%	5 30%
PHYSIOGRAPHY Position on land form Slope (typical) and range (%) Slope shape	Highest level 1, 0-1 Linear	Upper slope 5, 2-6 Convex	Drainage floor 2, 1-3 Concave	Middle slope 3, 1-4 Linear	Lower slope 1, 0-1 Linear
NATIVE VEGETATION Structure Dominant species	Woodland <i>E. macrorhyncha</i> <i>E. polyanthemos</i> <i>E. goniocalyx</i>	Heathy low woodland <i>E. goniocalyx</i> <i>E. macrorhyncha</i>	Woodland <i>E. microcarpa</i> <i>E. leucoxydon</i> <i>E. melliodora</i>	Woodland <i>E. microcarpa</i> <i>E. leucoxydon</i> <i>Casuarina luehmannii</i>	Woodland <i>E. microcarpa</i> <i>E. leucoxydon</i> <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	Alluvium Red gradational soils overlying sheet ironstone G n 4.11- 4/1/005 Clay loam Moderately hard 0.1-0.5 Very low throughout Very low throughout Slow Excessively drained Common Nil Low	Site 920 Alluvium Mottled red duplex soils overlying siliceous hardpan Dr 5.21-1/0/030 Loamy sand Soft 0.5-1 Very low throughout Low surface, moderate subsoil Slow Well drained Abundant High High	Site 923 Alluvium Yellow sodic duplex soils overlying siliceous hardpan Dy 3.42---2/1/038 Sandy loam Soft 0.5-1 Very low surface, moderate subsoil Low surface, moderate subsoil Slow Somewhat poorly drained Nil High Moderate	Site 921 Alluvium Red sodic duplex soils with ironstone, overlying siliceous hardpan Dr 3.42-2/1/021 Sandy loam Moderately hard 1-1.5 Very low surface, moderate subsoil Low surface, moderate subsoil Moderate Well drained Common Low Low	Site 922 Alluvium Reddish brown sodic duplex soils, overlying siliceous hardpan Dr 2.31-2/1/009 Sandy loam Moderately hard 1-1.5 Low surface, moderate subsoil Low surface, moderate subsoil Moderate Moderately well drained Common Moderate 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, perennality	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.