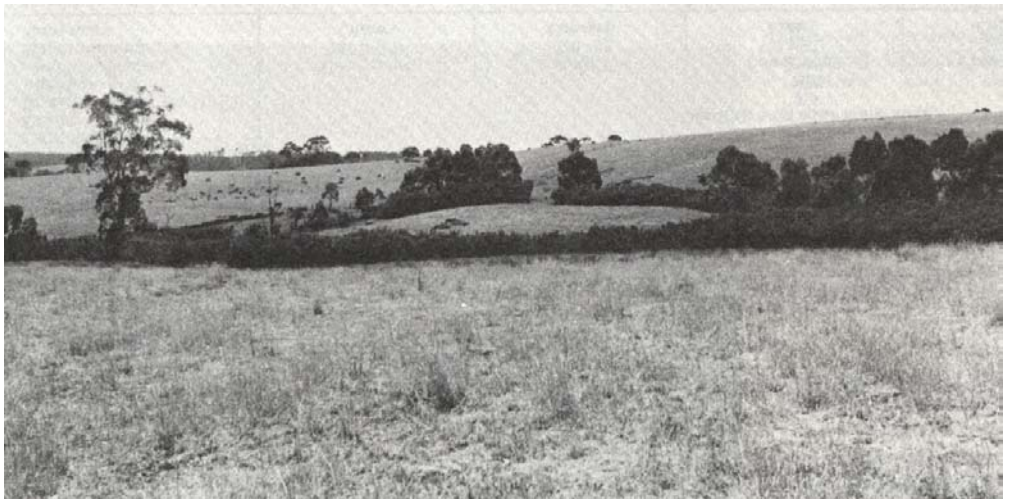
7.23 Kawarren Land System

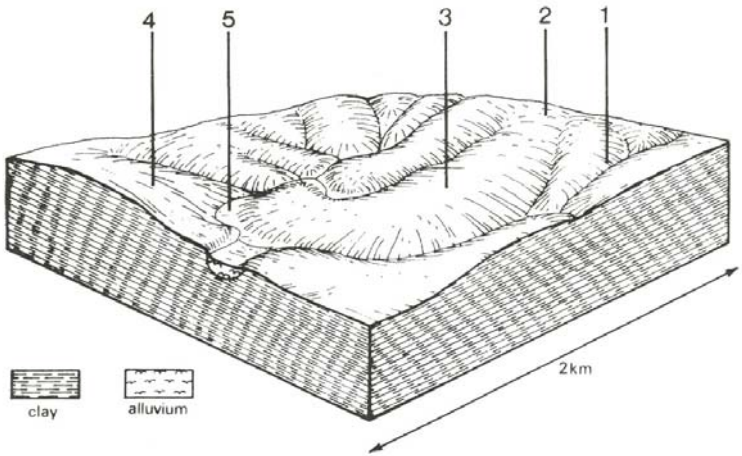
Rolling hills with occasional steep slopes and broad drainage lines are found in the vicinity of Kawarren. The landscape has several components, including some areas of red stony brown gradational soils developed on outcrops of basalt. However, old soils on deeply weathered Tertiary clay and sand tend to dominate the landscape.

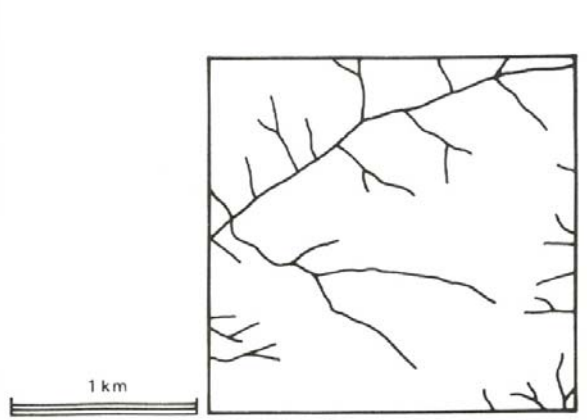
Other land systems with similar soils and parent material are found to the east and west of this land system. However, the Kawarren land system is a rolling landscape whereas the others are gently undulating to flat. The Barongarook land system to the east has a slightly lower rainfall and *Eucalyptus baxteri* has not been observed in this area.

Clearing has been common and the main land uses are dairy farming and grazing of beef cattle and sheep. Some forested areas, such as the old Beech Forest railway escarpment, are popular for bushwalking. Pine establishment is common on private land. Sheet erosion and landslips have occurred on the steeper slopes.



Most of the cleared areas are used for dairy farming.





KAWARREN Area: 41 km^2	Component and its proportion of land system				
	1 15%	2 10%	3 60%	4 10%	5 5%
CLIMATE Rainfall, mm Temperature, 0^{o}C Seasonal growth limitations	**Annual**: 850 – 1,100, lowest January (40), highest August (120) **Annual**: 12, lowest July (8), highest February (18) **Temperature**: less than 10^{o}C (av.) June – September **Precipitation**: less than potential evapotranspiration November - March				
GEOLOGY Age, lithology	Paleocene unconsolidated clay, silt and sand				
TOPOGRAPHY Landscape Elevation, m Local relief, m Drainage pattern Drainage density, km/km^2 Land form Land form element Slope (and range), % Slope shape	Rolling hills in the northern upper reaches of the Gellibrand River catchment 75 - 210 60 Dendritic with some radial areas 2.6 Hill Steep slope 20 (10-45) Linear	Crest, upper slope 12 (3-15) Convex	Crest, slope 9 (1-15) Convex	Slope 13 (6-15) Linear	Valley floor - 1 (0-2) Concave
NATIVE VEGETATION Structure Dominant species	Open forest *E. obliqua, E. radiata, E. viminalis*	Woodland *E. radiata, E. obliqua, E. nitida, E. ovata*	Open forest *E. obliqua, . radiata, E. viminalis*; occasionally *E. ovata*	Open forest *E. aromaphloia, E. obliqua, E. radiata*, occasionally *E. ovata*	Low woodland *E. ovata, E. radiata, Melaleuca squarrosa*
SOIL Parent material Description Surface texture Permeability Depth, m	Clay, silt and sand Yellow gradational soils, weak structure Sandy loam High >2	Colluvial sand on unconsolidated clay Grey sand soils, structured clay underlay Sandy loam Low >2	Clay, silt and sand Mottled yellow and red gradational soils Fine sandy loam Moderate >2	Clay, silt and sand Yellow-brown gradational soils, coarse structure Fine sandy loam Low >2	Alluvial clay, sand and silt Grey gradational soils Fine sandy loam Very low >2
LAND USE	**Uncleared areas:** Hardwood forestry for sawlogs, posts and poles; softwood plantations; nature conservation; passive recreation; water supply; forest grazing. **Cleared areas:** Beef cattle and sheep grazing; dairy farming; water supply				
SOIL DETERIORATION HAZARD Critical land features, processes, forms	Clay subsoils on steep slopes subject to periodic saturation are prone to landslips. Steep slopes are prone to sheet and rill erosion.	Low subsoil permeabilities leads to seasonal waterlogging. Low inherent fertility and permeable surface horizons lead to nutrient decline.	Low inherent fertility and phosphorus fixation lead to nutrient decline.	Dispersible clay subsoils of low permeability are prone to gully erosion. Clay subsoils on steeper slopes subject to periodic saturation are prone to landslips.	Low permeabilities and high water tables lead to seasonal waterlogging. High discharge rates along watercourses lead to some flooding and gully erosion.