

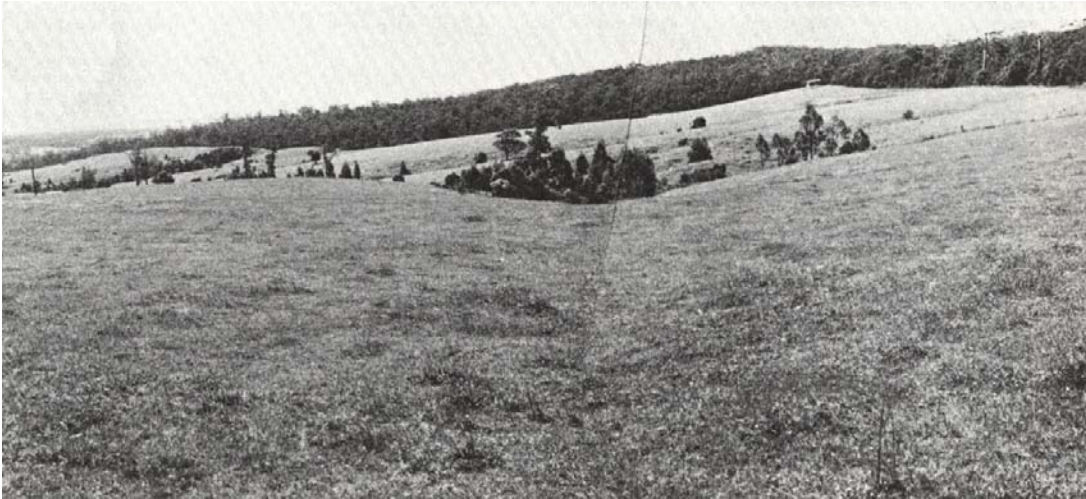
7.24 *Kennedys Creek Land System*

From Princetown, stretching northwards, an undulating plain can be found extending up into the catchment of Kennedys Creek. The southern parts consist of a series of north-nor'-west and south-sou'-east-oriented ridges, but the major part of the land system is a plain with dendritic drainage pattern.

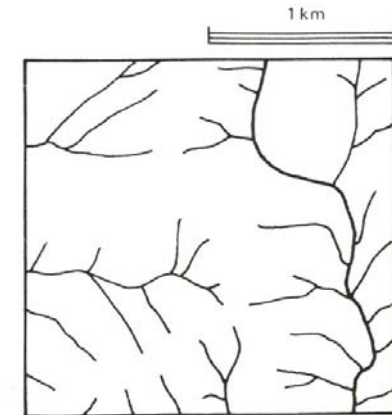
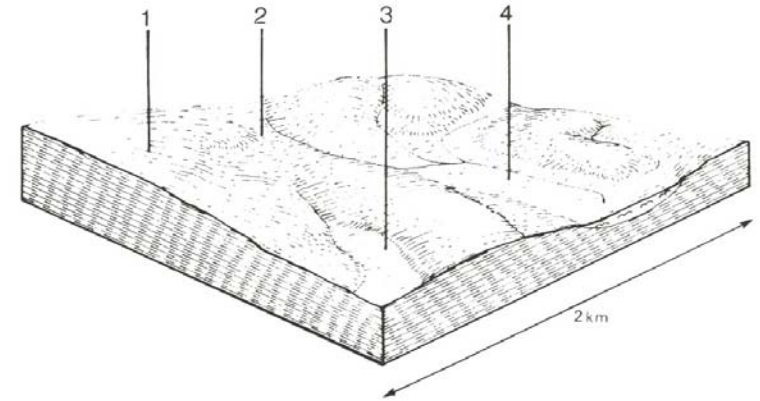
The higher parts of the landscape have deeply weathered soils with yellow and red mottled. Most slopes, however, carry heavier-textured soils with dark-coloured and coarsely structured subsoils. They extend up to the crests and ridges in many areas; less weathered profiles occupy the lower parts of the landscape.

This pattern resembles that found in many other land systems on Tertiary sediments. The distinguishing features here are the dominance of the coarsely structured soils in the landscape, and the absence of lateritic cappings.

Dairy farming is the main land use, and only small areas still remain under native forest. The coarsely structured subsoils are dispersible and gully and tunnel erosion have occurred. On recently cleared areas, particular care is needed to prevent gullies being initiated. Landslips also occur on these soils.



Only a few forested areas remain, dairy farming being the main land use



KENNEDYS CREEK

Area: 95 km²

	Component and its proportion of land system			
	1 20%	2 65%	3 6%	4 9%
CLIMATE Rainfall, mm Temperature, 0°C Seasonal growth limitations	Annual: 95 – 1,050, lowest January (40), highest August (130) Annual: 13, lowest July (8.5), highest February (18) Temperature: less than 10°C (av.) June – August Precipitation: less than potential evapotranspiration November – March			
GEOLOGY Age, lithology	Miocene unconsolidated marine clay, silt and sand			Recent alluvium
TOPOGRAPHY Landscape Elevation, m Local relief, m Drainage pattern Drainage density, km/km ² Land form Land form element Slope (and range), % Slope shape	Undulating plain 15 – 150 70 Predominantly dendritic with some trellis 4.0 Gentle rise			
NATIVE VEGETATION Structure Dominant species	Open forest <i>E. obliqua</i> , <i>E. viminalis</i> , occasionally <i>E. ovata</i>	Open forest <i>E. aromaphloia</i> , <i>E. viminalis</i> , <i>E. obliqua</i> , <i>E. radiata</i> , <i>E. ovata</i>	Open forest <i>E. obliqua</i> , <i>E. radiata</i> , occasionally <i>E. viminalis</i>	Woodland <i>E. ovata</i> , <i>E. obliqua</i> , <i>E. viminalis</i>
SOIL Parent material Description Surface texture Permeability Depth, m	Clay and silt Mottled yellow and red gradational soils Fine sandy loam Moderate >2	Clay and silt Yellow-brown gradational soils, coarse structure Fine sandy loam Low >2	Clay and silt Grey-brown gradational soils Fine sandy loam Moderate >2	Alluvial clay, silt and sand Mottled yellow and grey gradational soils Sandy loam Low >2
LAND USE	Cleared areas: Dairy farming; beef cattle and sheep grazing; water supply Uncleared areas: Water supply; hardwood forestry; nature conservation			
SOIL DETERIORATION HAZARD Critical land features, processes, forms	Low inherent fertility, phosphorus fixation and steep slopes lead to sheet erosion and nutrient decline.	High dispersible clay subsoils are prone to gully and tunnel erosion. Periodic saturation leads to landslips. Steeper slopes are prone to sheet erosion of nutrient-rich surface horizons.	Steeper slopes are prone to sheet erosion. Dispersible clay subsoils on moderate steep slopes are prone to gully erosion.	Dispersible clay subsoils of low permeability are prone to gully erosion. High water tables lead to seasonal waterlogging and soil compaction.