7.15 Deepdene Land System

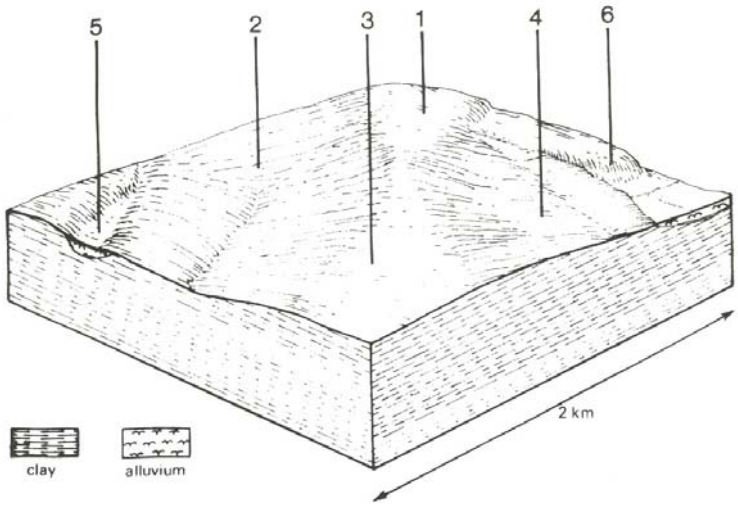
An extensive lateritic plateau to the north of the Otway Range has been dissected by the Barwon River and its tributaries. There are several plateau remnants separated by alluvial plains of the Barwon River land system. In general, flat or gently undulating plains occupy the highest parts of the landscape, and these are surrounded by gentle slopes leading to slightly lower surfaces or by steep scarps falling away to the alluvial plains.

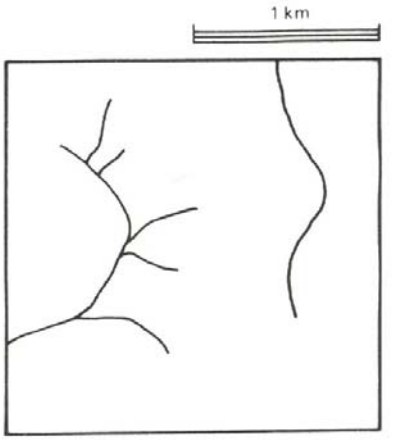
The areas to the west of the Barwon River is more dissected, with generally steeper slopes.

The soils on the highest levels have been strongly lateritized, with ironstone throughout the profile and concentrated in discontinuous layers at about 1.2 m depth. Similar soils without ironstone are found on lower levels, while the gentle slopes between these levels possess heavier-textured soils with coarse blocky structures in the subsoils.

Clearing has been widespread and the land is used for sheep and beef cattle grazing as well as some dairying. Soil salting has occurred in some areas, and major problems have arisen due to gully and tunnel erosion. The more dissected areas to the west of the Barwon are the most susceptible, and damage has been widespread.

Dispersible subsoils on the steeper slopes of this landscape are highly susceptible to gully erosion and landslips.





DEEPDENE Area: 179 km^2	Components and its proportion of land system					
	1 40%	2 15%	3 20%	4 10%	5 7%	6 8%
CLIMATE Rainfall, mm Temperature, 0^{o}C Seasonal growth limitations	**Annual**: 650 – 700, lowest January (30), highest August (85) **Annual**: 13, lowest July (8), highest February (9) **Temperature**: less than 10^{o}C (av.) June – August **Precipitation**: less than potential evapotranspiration early October – late April					
GEOLOGY Age, lithology	Pliocene clay, silt and sand					
TOPOGRAPHY Landscape Elevation, m Local relief, m Drainage pattern Drainage density, km/km^2	Undulating plain inland of the Otway Range 120 - 190 40 Dendritic 1.0					
Land form	Rise			High level terrace	Drainage line	Scarp
Land form element Slope (and range), % Slope shape	Broad crest 1 (0-2) Linear	Gentle upper slope 5 (2-1) Linear	Gentle broad slope 3 (0-7) Convex	- 1 (0-2) Linear	- 0 (0-1) Concave	- 35 (10-50) Linear, Convex
NATIVE VEGETATION Structure Dominant species	Open forest *E. viminalis, E. obliqua, E. radiata*	Open forest *E. viminalis, E. ovata*	Open forest *E. obliqua, E. viminalis, E. ovata, E. radiata*	Woodland *E. viminalis, E obliqua, E. ovata*	Closed scrub *Leptospermum juniperinum Melaleuca squarrosa*	Open forest *E. obliqua, E. viminalis*
SOIL Parent material Description Surface texture Permeability Depth, m	Lateritized sediments Mottled yellow and red duplex soils with ironstone Sandy loam Moderate 1.2	Clay Yellow-brown sodic duplex soils, coarse structure Fine sandy loam Low >2	Clay, silt and sand Mottled yellow and red duplex soils Sandy loam Moderate >2	Alluvial clay, silt and sand Yellow-brown calcareous sodic soils, coarse structure Fine sandy loam Low >2	Alluvial clay, silt and sand Grey gradational soils Fine sandy clay loam Very low >2	Clay, silt and sand Yellow sodic duplex soils Sandy loam Moderate >2
LAND USE	**Cleared areas:** Sheep and beef cattle grazing; cash and row cropping; dairy farming.					
SOIL DETERIORATION HAZARD Critical land features, processes, forms	Low inherent fertility, phosphate fixation, and permeable surface soils lead to nutrient decline.	Dispersible clay subsoils of low permeability are prone to gully and tunnel erosion. Sodic subsoils of low permeability receiving saline seepage are prone to soil salting.	Low inherent fertility, phosphate fixation and permeable surface soils lead to nutrient decline.	Dispersible clay subsoils of low permeability are prone to gully and tunnel erosion and soil salting.	High seasonal water table leads to waterlogging, soil compaction and soil salting. Dispersible clay subsoils are prone to gully and tunnel erosion.	Dispersible soils on steep slopes subject to periodic saturation are prone to landslips and sheet erosion.