

### 7.34 Redwater Creek Land System

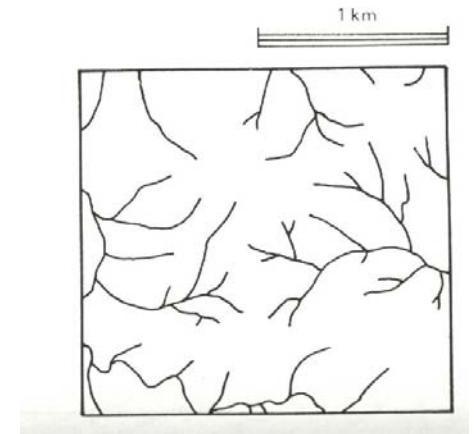
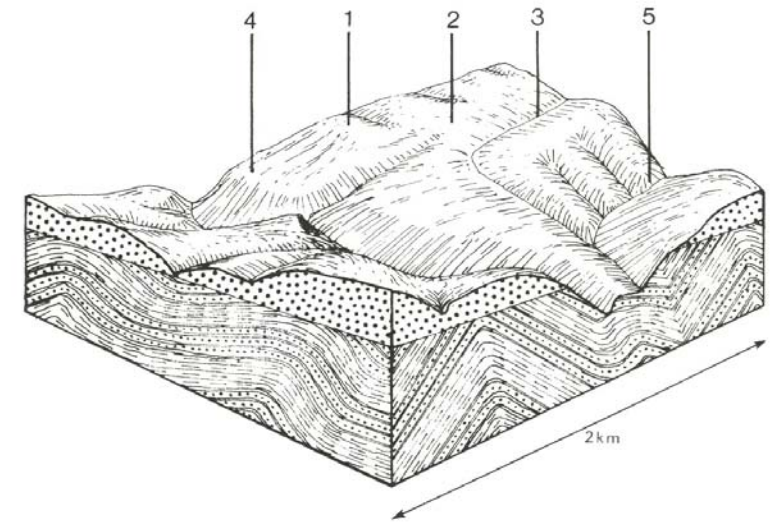
In the southern parts of the Otway Range, gentle hill cappings of Tertiary quartzitic sands occur as remnants on the high parts of the landscape. Most creeks and rivers have dissected through these sands, exposing Cretaceous sandstone and mudstone on steep slopes leading down to the drainage lines.

The capping of sand overlies Cretaceous sediments at a fairly shallow and uniform depth. The native vegetation on the sands is not dissimilar from that on the surrounding brown gradational soils, consisting of tall open forests of *Eucalyptus obliqua*, *E. cypellocarpa* and *E. regnans* on the better sites. These tall trees apparently extract nutrients from underlying weathering Cretaceous rocks. Nutrient cycling by leaf fall and decay has built up the fertility of the sands, far above that normally encountered on such parent material.

Only minor parts of this land system have been cleared and it appears that a marked decline in soil fertility has resulted. Hardwood forestry is the main land use, together with a small industry in the cutting of tea-tree stakes.



*The higher parts of the landscape form undulating hills, with E. regnans successfully competing with other trees on sand soils.*



**REDWATER CREEK**Area: 57 km<sup>2</sup>

	1 5%	2 40%	3 5%	4 25%	5 25%
<b>CLIMATE</b>					
Rainfall, mm	<b>Annual:</b> 1,150 – 1,60, lowest January (60), highest August (160)				
Temperature, 0°C	<b>Annual:</b> 12, lowest July (7), highest February (16)				
Seasonal growth limitations	<b>Temperature:</b> less than 10°C (av.) June – September				
	<b>Precipitation:</b> less than potential evapotranspiration December – mid February				
<b>GEOLOGY</b>					
Age, lithology	Paleocene unconsolidated quartz sand and gravel shallowly underlain by Lower Cretaceous sandstone and mudstone				Lower Cretaceous sandstone and mudstone
<b>TOPOGRAPHY</b>					
Landscape	Deeply dissected hills with broad gently hill cappings in the southern parts of the Otway Range.				
Elevation, m	15 – 370				
Local relief, m	90				
Drainage pattern	Dendritic with some radial areas				
Drainage density, km/km <sup>2</sup>	3.7				
Land form	Rise			Scarp	
Land form element	Crest	Crest, upper slope	Swale	Crest, upper slope	Steep slope
Slope (and range), %	4 (1-7)	20 (3-35)	3 (1-5)	8 (3-15)	35 (10-60)
Slope shape	Linear	Convex	Concave	Irregular	Linear
<b>NATIVE VEGETATION</b>					
Structure	Woodland	Tall open forest	Closed forest	Open forest	Tall open forest
Dominant species	<i>E. nitida</i> , <i>E. baxteri</i>	<i>E. obliqua</i> , <i>E. cypellocarpa</i> , <i>E. regnans</i> , <i>E. viminalis</i>	<i>Leptospermum juniperinum</i>	<i>E. regnans</i> , <i>E. obliqua</i> , <i>E. baxteri</i> , occasionally <i>E. viminalis</i>	<i>E. obliqua</i> , <i>E. regnans</i> , <i>E. cypellocarpa</i> , <i>E. viminalis</i>
<b>SOIL</b>					
Parent material	Deep deposits of quartz sand	Shallow deposits of quartz sand	Alluvial sand and gravel, organic matter	Shallow deposits of quartz sand and gravel	In-situ weathered rock
Description	Grey sand soils with hardpans, uniform texture	Black sand soils, uniform texture	Black sand soils, uniform texture	White sand soils, uniform texture	Brown gradational soils
Surface texture	Loamy sand	Sandy6 loam	Silty loam	(Gravelly) loamy sand	Sandy clay loam
Permeability	Low	High	Moderate	Very high	Moderate
Depth, m	1.2	>2	>2	>2	1.4
<b>LAND USE</b>	<b>Uncleared areas:</b> Hardwood forestry for sawlogs and pulpwood; tea-tree stake harvesting; nature conservation; sand and gravel extraction. <b>Minor cleared areas:</b> Beef cattle grazing on unimproved pastures.				
<b>SOIL DETERIORATION HAZARD</b>					
Critical land features, processes, forms	Hardpans restrict vertical drainage, leading to seasonal waterlogging. Very low inherent fertility with some leaching of permeable highly acidic surfaces leads to nutrient decline.	Soils of high permeability in high-rainfall areas are prone to nutrient decline. Steeper slopes with compacted soils (tracks, clear-felled areas) are prone to sheet and rill erosion.	High water tables lead to waterlogging. Run-off from adjacent hills lead to flooding and siltation.	Soils of very low inherent fertility, low nutrient – holding capacity and high permeability in high-rainfall areas are prone to nutrient decline.	Clay subsoils on steeper slopes are subject to periodic saturation and are prone to landslips. Steeper slopes are prone to sheet erosion.