

7.33 Porcupine Creek Land System

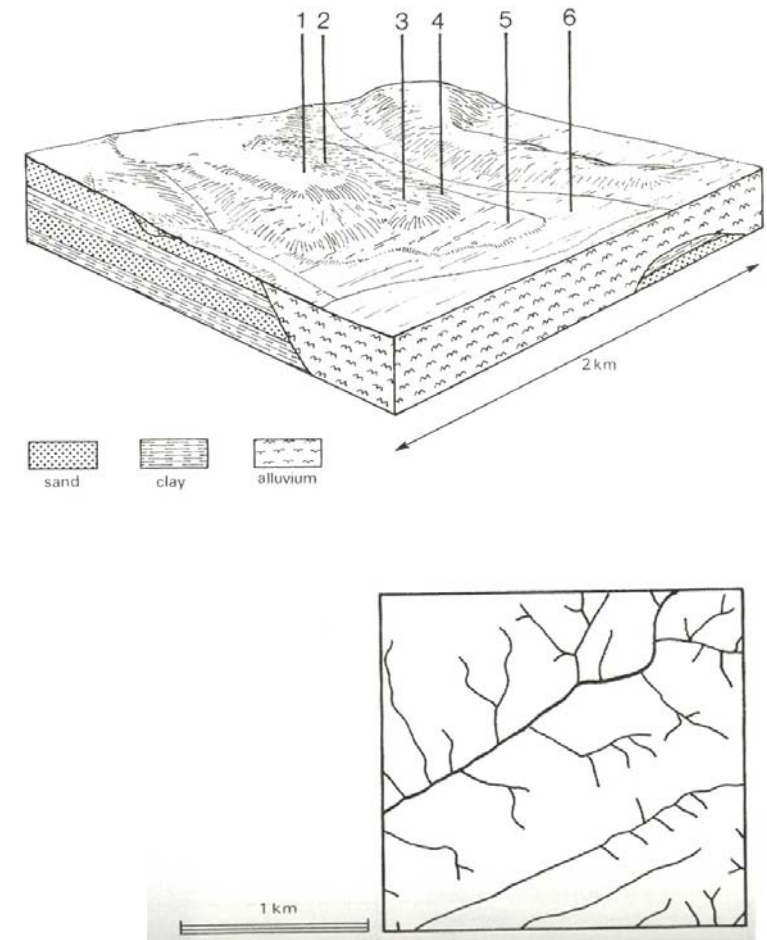
Tertiary quartzitic sands outcrop in many areas north and west of the Range. Widespread surface redistribution of this sand has resulted in a gentle landscape with sands overlying more clayey material at four localities. The largest area is east of Kwarren in the catchment of Porcupine Creek, and another extensive area is found in the upper reaches of Tomahawk Creek. Somewhat steeper slopes with a predominance of deep relatively uniform sands occur to the east of Forrest, while the area near Princetown has broader crests and narrower drainage lines.

Hardpans are a feature of the soils and the impeded drainage leads to waterlogging on many sites. The native vegetation consists of woodlands of *Eucalyptus nitida* and *E. radiata*, with closed scrubs of shrub species in the drainage lines.

Clearing of these areas for agriculture has been attempted in many areas, but impeded drainage on sites with hardpans and excessive drainage on sites without them create management difficulties. Deep ripping of the hardpans may improve site drainage, but low soil pH and low fertility also have to be contended with for successful pasture establishment. Most areas remain as wildlife habitats, with the exception of one near Princetown and part of the area near Tomahawk Creek, which border the Heytesbury Settlement Scheme.



Drainage of these landscapes is poor, and the waterlogged soils carry woodlands of *E. nitida* and *E. radiata* with closed scrubs in the drainage lines.



PORCUPINE CREEK

Area: 71 km²

Component and its proportion of land system						
	1 30%	2 25%	3 15%	4 15%	5 5%	6 10
CLIMATE						
Rainfall, mm	Annual: 800 – 1,000, lowest January (40), highest August (120)					
Temperature, 0°C	Annual: 13, lowest July (8), highest February (18)					
Seasonal growth limitations	Temperature: less than 10°C (av.) June – August					
	Precipitation: less than potential evapotranspiration late October – March					
GEOLOGY						
Age, lithology	Paleocene unconsolidated marine sand			Paleocene unconsolidated marine clay, sand and silt		
TOPOGRAPHY						
Landscape	Undulating plains					
Elevation, m	60 – 230					
Local relief, m	45					
Drainage pattern	Trellis					
Drainage density, km/km ²	3.8					
Land form	Rise			Terrace		Drainage line
Land form element	Crest, slope	Upper slope	Mid slope	Lower slope	-	-
Slope (and range), %	21 (9-38)	9 (2-21)	5 (2-11)	16 (5-33)	2 (0-5)	0 (0-1)
Slope shape	Convex	Convex	Linear	Convex	Linear	Linear
NATIVE VEGETATION						
Structure	Woodland	Low woodland	Open woodland	Woodland	Open forest	Closed scrub
Dominant species	<i>E. radiata</i> , <i>E. nitida</i>	<i>E. radiata</i> , <i>E. nitida</i>	<i>E. radiata</i> , <i>E. nitida</i>	<i>E. radiata</i> , <i>E. nitida</i> , <i>E. ovata</i>	<i>E. ovata</i> , <i>E. viminalis</i> , <i>E. radiata</i> , <i>E. baxteri</i>	<i>Melaleuca squarrosa</i> , <i>Casuarina littoralis</i> , <i>Aotus ericoides</i>
SOIL						
Parent material	Sand	Sand	Colluvial sand on clay	Colluvial sand on silt, sand and clay	Colluvial sand on alluvial clay, silt and sand	Plant remains alluvial sand, silt and clay
Description	Grey sand soils, uniform texture	Grey sand soils, with hardpans, uniform texture	Grey sand soils, structured clay underlay	Grey sand soils, weakly structured clay underlay	Grey sand soils, structured clay underlay	Black sand soils, uniform texture
Surface texture	Loamy sand	Loamy sand	Sandy loam	Sandy loam	Sandy loam	Silty loam
Permeability	Very high	Very low	Very low	Low	Very low	High
Depth, m	>2	0.8	>2	>2	>2	>2
LAND USE	Uncleared areas: Nature conservation; water supply; sand and gravel extraction; hardwood forestry for posts, poles and fuel Minor cleared areas: Beef cattle grazing; water supply					
SOIL DETERIORATION HAZARD						
Critical land features, processes, forms	Very low inherent fertility and high permeability lead to nutrient decline. Steeper slopes with compacted soils are prone to sheet, rill and scour gully erosion.	Hardpans restrict drainage, leading to seasonal waterlogging. Very low inherent fertility and leaching of highly acidic permeable surfaces lead to nutrient decline.	Low permeability and seasonal perched water tables lead to waterlogging and soil compaction.	Weakly structured soils of low permeability on steeper slopes are prone to sheet erosion.	Low permeability and seasonal perched water tables lead to waterlogging and soil compaction.	High water tables lead to waterlogging and soil compaction. Run-off from adjacent hills lead to flooding and siltation.