

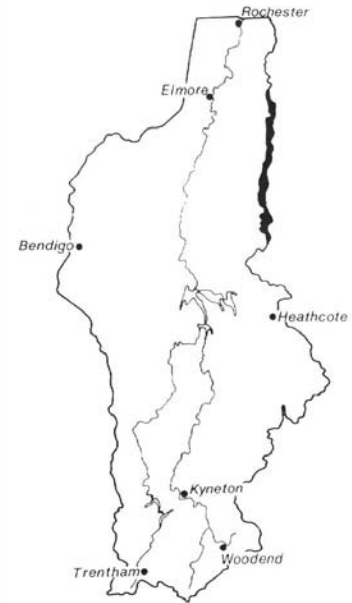
### 7.3 Camel Range Land System (CR)

This land system occurs on a north-south trending ridge of Cambrian volcanics and associated sediments. The original basalts have been altered to greenstone and many of the sediments have been enriched with silica to form chert. The ridge is steepest at its southern end near Toolleen, and gradually loses elevation to the north until it eventually dips beneath riverine plain near Rochester. Rocky crests, steep upper slopes and long gentle lower slopes are characteristic.

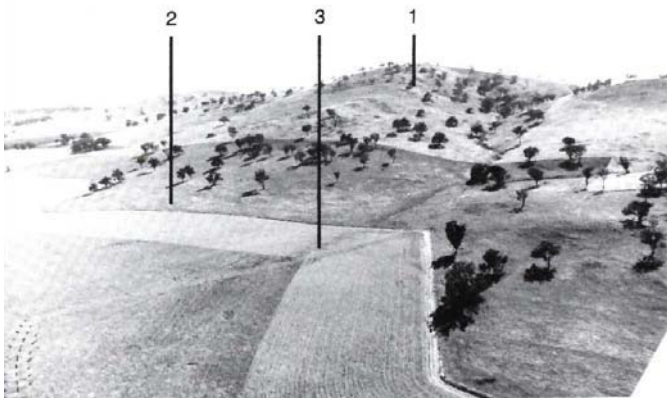
Most soils are red and relatively fertile, and have gradational profiles with calcareous subsoils. The shallow profiles of the upper slopes are prone to leaching of nutrients and the intake of water poses the threat of salting downslope. The soils are susceptible sheet and rill erosion. All soils are liable to compact, particularly those in drainage depressions with deep silty clay loam surfaces.

The original woodlands have been almost totally cleared to make way for agriculture. The gentler slopes are intensively cropped with cereals such as wheat, oats and barley, and with summer-grown oil-seed crops. Grazing predominates on the steeper rocky slopes, which are relatively common in the south.

Accelerated sheet and rill erosion occurs along the range in the absence of conservation practices. Dryland salting is widespread in the drainage depressions, resulting from an increased movement of water through the soils, particularly on the upper slopes, and from mobilisation of soluble salts. A secondary ridge of Cambrian sediments to the west parallels the main range and this impedes the flow of saline groundwaters causing them to rise near to the soil surface in the lower drainage depressions.

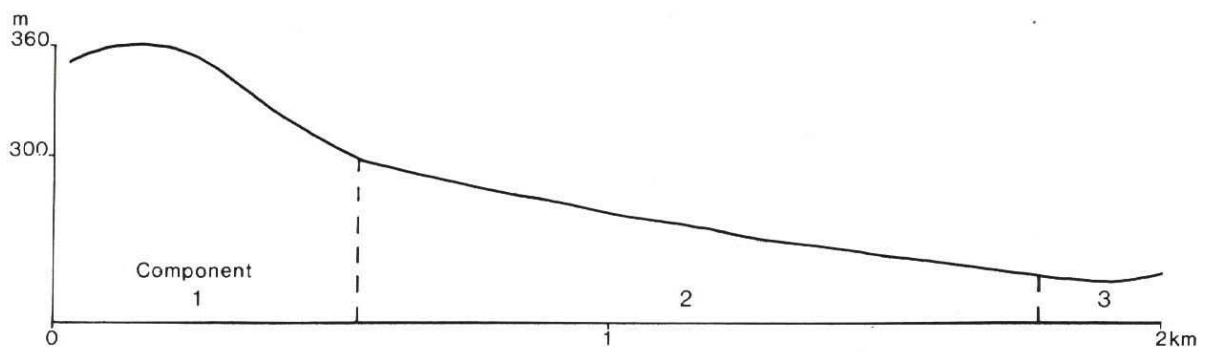
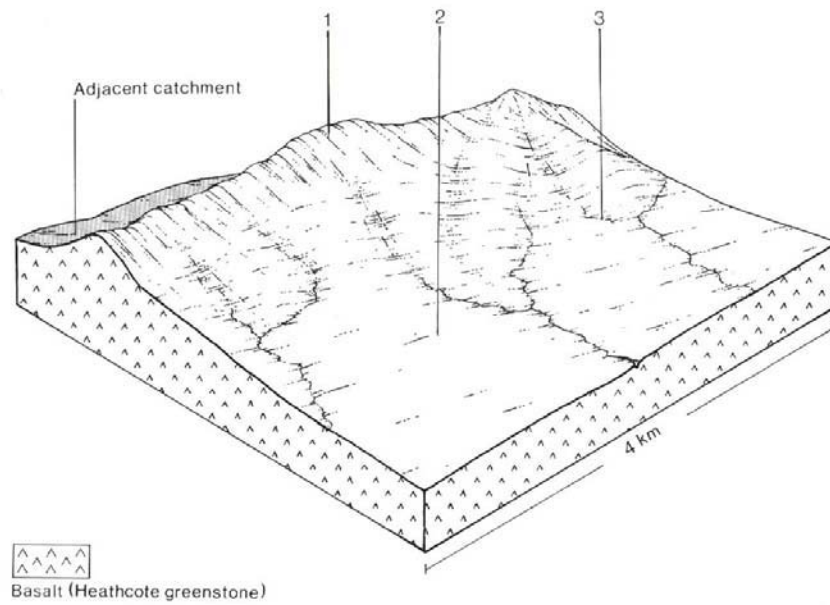


*The Mount Camel Range is an upthrust of Cambrian volcanic rocks, forming a prominent ridgeline.*



*Land use differentiates the shallow gradational soils of the upper slopes from the deeper gradational/duplex soils of the lower slopes.*

*High yields are obtained from cereal crops grown on the red, well-structured volcanic soils.*

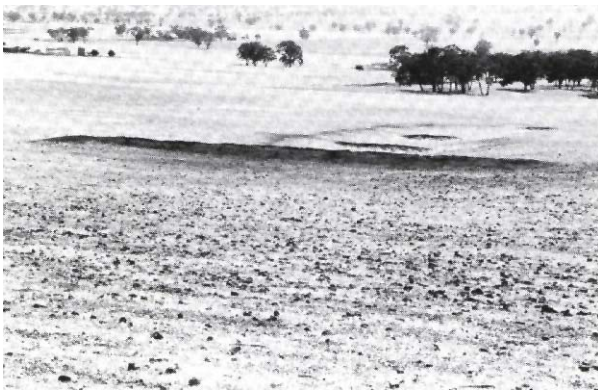


**CAMEL RANGE LAND SYSTEM (CR) Area 40 km<sup>2</sup> 1.0% of catchment**

<b>CLIMATE</b> Rainfall, mean (mm) Temperature, mean (°C) Seasonal growth limitations	Annual, 450–575; lowest December or January (30-35), highest June, July or August (50-60) Annual, 14.5; lowest July (8), highest January (22) Temperature less than 10°C (av.): May-August Rainfall less than evapotranspiration: September-mid April		
<b>GEOLOGY</b> Age, rock type	Cambrian, greenstone with minor interbedded ash, chert and siltstone		
<b>PHYSIOGRAPHY</b> Landform pattern Elevation range (m) Relative relief (m) Drainage pattern Channel spacing	Low hilly ridge with gentle footslopes 180-400 60-80 Parallel/dendritic Sparse		
<b>LAND COMPONENT</b> Number Percentage of land system	1 25	2 70	3 5
<b>PHYSIOGRAPHY</b> Landform element Slope; modal, range (%) Site drainage	Steeper slope and rocky crest 25, 5-40 Excessively drained	Gentler lower slope and colluvial fan 5, 2-10 Well drained	Shallow drainage depression 2, 1-4 Moderately well drained
<b>SOIL</b> Parent material Description  Classification Surface texture Depth to hardpan or bedrock (m) Nutrient status Available water capacity Permeability Exposed rock/stone (%) Sampled site number	Cambrian rock Stony red gradational soils, usually shallow  Gn3.12 Silty clay loam 0.3-1.0 High Moderate Moderate 0-20 720	Cambrian rock and colluvium Red gradational soils with alkaline subsoils, often with carbonate concretions in the subsoils of the northern soils; occasional red duplex soils Gn3.13, Dr2.13; minor Gn3.12 Loam >2.0 High Moderate Moderate to low 0 721, 1053, 1104	Alluvium and colluvium Reddish brown to yellowish brown gradational soils, with pale A <sub>2</sub> horizons and neutral to alkaline subsoils that often contain buckshot Gn3.16, Gn3.75 Silty clay loam >2.0 High Moderate Moderate 0 -
<b>NATIVE VEGETATION</b> Structure Characteristic species (+ indicates predominant species)	Woodland II/open forest II <i>E. microcarpa</i> +, <i>E. albens</i> +, <i>E. melliodora</i>	Woodland II/open forest II <i>E. microcarpa</i> +, <i>E. albens</i> +, <i>E. melliodora</i>	Woodland II/open forest II <i>E. microcarpa</i> +, <i>E. albens</i> +, <i>E. melliodora</i>
<b>PRESENT LAND USE</b>	Grazing on introduced and native pastures; minor cereal-cropping	Grazing on introduced pastures; cereal-cropping	Grazing on introduced pastures; cereal-cropping
<b>OBSERVED SOIL DETERIORATION</b>	Sheet erosion common on steeper slopes, especially when cultivated	Moderate sheet erosion	Salting common in the lower drainage depressions.

## SUSCEPTIBILITY OF LAND TO PROCESSES OF SOIL DETERIORATION – Camel Range

Compt.	Process	Susceptibility	Critical land factors	Off-site effects	Comments
1	Sheet & rill erosion	Moderate	<ul style="list-style-type: none"> <li>• moderate, often stony, slopes</li> <li>• long slope length</li> <li>• increased run-on</li> <li>• well-aggregated soil particles</li> <li>• summer thunderstorms of high rainfall intensity</li> </ul>	<ul style="list-style-type: none"> <li>• sedimentation</li> </ul>	Due to the high permeability of the soils and a protective pasture or stubble layer, erosion only occurs on cultivated areas.
	Compaction of topsoil	Moderate	<ul style="list-style-type: none"> <li>• loamy texture</li> </ul>	<ul style="list-style-type: none"> <li>• increased run-on</li> </ul>	The hazard is ameliorated by the high structural stability of the soil aggregates
2	Leaching of nutrients	Low to moderate	<ul style="list-style-type: none"> <li>• moderate to high soil permeability</li> <li>• moderate to high cation exchange capacity</li> </ul>	<ul style="list-style-type: none"> <li>• accession of soluble salts, particularly Na, to the groundwater table.</li> </ul>	-
	Sheet & rill erosion	Low to moderate	<ul style="list-style-type: none"> <li>• erosion run-on</li> <li>• long slope length</li> <li>• summer thunderstorms of high rainfall intensity</li> </ul>	<ul style="list-style-type: none"> <li>• sedimentation</li> <li>• increased run-on</li> </ul>	As for component 1
3	Compaction of topsoil	Moderate	<ul style="list-style-type: none"> <li>• loamy texture</li> </ul>	<ul style="list-style-type: none"> <li>• increased run-on</li> </ul>	The hazard is ameliorated by the high structural stability of the soil aggregates
	Gully erosion	Low to moderate	<ul style="list-style-type: none"> <li>• subsoils that slake readily</li> <li>• accumulation of alluvium</li> </ul>	<ul style="list-style-type: none"> <li>• sedimentation</li> <li>• turbidity of water</li> </ul>	-
	Salting	Moderate	<ul style="list-style-type: none"> <li>• saline water table at shallow depth</li> <li>• stored salts in soil and parent material.</li> </ul>	<ul style="list-style-type: none"> <li>• Saline stream flows</li> </ul>	Loss of the protective vegetation cover due to salt toxicity can initiate erosion problems
	Compaction of topsoil	Moderate	<ul style="list-style-type: none"> <li>• Loamy texture</li> <li>• Topsoil often moist</li> </ul>	<ul style="list-style-type: none"> <li>• Increased flash flows</li> </ul>	-



*Small gully-plug banks effectively reduce the velocity and erosion power of run-off water in the drainage depressions.*



*Salting in the lower drainage depressions indicates an imbalance upslope between water infiltration and evapotranspiration by the vegetation*