

ROC Rockleigh Land System

Catchments with undulating low hills, broad valleys and sandy soils near Eden Valley and Rockleigh

Area: 45.3 km²

Annual rainfall: 400 - 600 mm average

Geology: The land is formed on metamorphosed sandstones of the Backstairs Passage Formation and associated sandy outwash sediments. The feature of this System is the coarseness of the basement rocks and the resulting sandiness of the landscape.

Topography: The Rockleigh System occurs in two separate locations. The larger occurrence is in the Rockleigh area, and includes the Loxton Creek catchment. The smaller occurrence is east of Eden Valley in a small subcatchment of the River Marne. Both are characterized by broad valleys within which are rises and low hills formed on basement rocks. Slopes are as low as 2% on low rises with relief to 10 m, and up to 40% (but usually less than 30%) on moderately steep low hills with relief of up to 90 m. Between the highs are broad drainage depressions. Although well defined and eroded in places, water courses are commonly ill defined in wet flats.

Elevation: 170 m to 410 m in the southern area
310 m to 440 m in the northern area

Relief: 10 m to 90 m in the south
10 m to 30 m in the north

Soils: The dominant soil characteristic is very sandy texture, either as deep alluvial profiles or as coarse textured surface soil overlying clay subsoil, formed in either alluvium or weathering rock.

Main soils

Hillslopes

- K3** Loamy sand over dispersive clay
- K5** Loamy sand over sandy clay loam
- L1** Shallow stony loamy sand

Creek flats

- G2** Thick sand over sandy clay loam
- G3** Thick sand over clay
- H3** Deep bleached sand
- M1** Gradational sand

Main features: The Rockleigh Land System is characterized by undulating to moderately steep rises and low hills with sand over clay soils, and broad flats with deep sands or thick sand over clay soils. Low fertility, water repellence and high susceptibility to erosion are the dominant features affecting land use. There has evidently been extensive erosion in the past, by both wind and water. This has largely been arrested by improved land management practices. Waterlogging and sporadic associated saline seepage are additional problems on the flats.



Soil Landscape Unit summary: 7 Soil Landscape Units (SLUs) mapped in the Rockleigh Land System

SLU	% of area	Main features #
AiB AiC AiI	0.4 11.6 5.5	<p>Rolling to moderately steep low hills with relief of 30 to 90 m and slopes of 15-40%. There is variable rock outcrop up to 20% on steeper slopes.</p> <p>AiB Moderately steep isolated rises to 20 m high with slopes to 20%.</p> <p>AiC Moderately steep low hills with relief of 30-90 m and slopes of 15-40%.</p> <p>AiI Moderately steep dissected slopes with relief to 50 m, slopes of 10-30% and eroded watercourses.</p> <p>Main soils: <u>loamy sand over dispersive clay</u> - K3 (E), <u>loamy sand over sandy clay loam</u> - K5 (E) and <u>shallow stony loamy sand</u> - L1 (C). These soils are moderately deep and moderately well drained, but infertile due to their low clay contents. They are highly erodible (both wind and water). On the steeper slopes of these landscapes, water erosion is a serious potential problem.</p>
CUC CUD CUI	29.2 15.8 1.7	<p>Rises and low hills formed on metamorphosed sandstones.</p> <p>CUC Rises and low hills with relief from 10 to 60 m and slopes of 2-6%.</p> <p>CUD Low hills with relief from 20 to 60 m and slopes of 6-15%</p> <p>CUI Moderate slopes with eroded water courses. Slopes are 8-15%.</p> <p>Main soils: <u>loamy sand over dispersive clay</u> - K3 (E) and <u>loamy sand over sandy clay loam</u> - K5 (E), with soils as for LWe (below) on limited lower slopes. These soils are moderately deep and moderately well drained, but infertile due to their low clay contents. They are highly erodible (both wind and water). There is evidence of extensive historic erosion on this land.</p>
LWe	35.8	<p>Gently sloping valley flats formed on coarse grained alluvium. Slopes are 2% to 6%. Watercourses are well defined and often gullied with associated minor saline seepage.</p> <p>Main soils: <u>thick sand over clay</u> - G3 (E), <u>gradational sand</u> - M1 (C), <u>thick sand over sandy clay loam</u> - G2 (C) and <u>deep bleached sand</u> - H3 (C). These soils are deep but infertile due to their sandiness and often strong degree of leaching. Water repellence is commonly associated with the sandy soils. Drainage is often imperfect due to dispersive clayey subsoils (G3 soils) or relatively shallow ground water tables. The flats are broad and shallow, and water courses are often not clearly defined, but tend to dissipate into swampy flats. Elsewhere, definition is clearer and banks may be eroded. There is sporadic saline seepage associated with the wet areas.</p>

PROPORTION codes assigned to soils within Soil Landscape Units (SLU):

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| (D) Dominant in extent (>90% of SLU) | (C) Common in extent (20–30% of SLU) |
| (V) Very extensive in extent (60–90% of SLU) | (L) Limited in extent (10–20% of SLU) |
| (E) Extensive in extent (30–60% of SLU) | (M) Minor in extent (<10% of SLU) |



Detailed soil profile descriptions:

- G2** Thick sand over sandy clay loam (Bleached, Eutrophic, Brown Chromosol)
Thick greyish sand with a bleached A2 layer, sharply overlying a brown mottled moderately well structured sandy clay loam, grading to coarse grained alluvial sediments.
- G3** Thick sand over clay (Eutrophic, Brown Sodosol)
Thick greyish sand with a bleached A2 layer, sharply overlying a brown mottled dispersive sandy clay to clay, grading to coarser grained material with depth.
- H3** Deep bleached sand (Arenic, Bleached-Orthic Tenosol)
Very deep greyish brown massive sand, grading to white sand, overlying layers of brown, yellow and grey sand to clayey sand.
- K3** Loamy sand over dispersive clay (Mesotrophic, Red Sodosol)
Thick greyish brown loamy sand with a bleached A2 horizon, overlying a red and brown mottled sandy clay to clay with columnar structure, grading to weathering metamorphosed sandstone.
- K5** Loamy sand over sandy clay loam (Mesotrophic, Brown Kandosol)
Brown loamy sand with variable sandstone gravel, grading to a massive red and yellowish brown sandy clay loam to sandy clay, over weathering sandstone.
- L1** Shallow stony loamy sand (Acidic, Lithic, Bleached-Leptic Tenosol)
Thick grey gravelly loamy sand with a bleached and very quartz stony A2 horizon overlying quartzitic sandstone within 50 cm of the surface.
- M1** Gradational sand (Eutrophic, Brown Kandosol)
Very thick brown sand with bleached and rusty mottles, overlying a massive brown clayey sand to light sandy clay loam at about 100 cm.

Further information: [DEWNR Soil and Land Program](#)

