

MRU Mount Rufus Land System

Moderately steep to steep low hills between Eudunda and Dutton

Area: 44.7 km²

Annual rainfall: 405 – 540 mm average

Geology: The Land System is formed on Appila Tillite and siltstones of the Tapley Hill and Wilyerpa Formations, with interbedded quartzites particularly in the north. These rocks are at or near the surface over most of the area, with only minor accumulations of alluvium. Soft secondary carbonates mantle most of the rocks. In places these have hardened to rubbly forms.

Topography: The Land System is typically moderately steep to steep, with slopes in the range 15 - 60%. There are minor areas of undulating to gently rolling land, mostly as footslopes. In the south the terrain is essentially the dissected eastern slope of the Tableland plateau. In the north, there is a strong lineation with two prominent strata of quartzite forming NNW - SSE trending ridges, between which is a strip of undulating rises. These ridges have been dissected at right angles to their strike to form a characteristic saw tooth topography. Water courses throughout are generally eroded, due to the high runoff volumes generated by long steep slopes and shallow soils coupled with over-grazing in the past.

Elevation: 550 m (Mt. Rufus) to 380 m along much of the eastern side

Relief: Maximum relief is 100 m

Soils: Most soils are shallow to moderately shallow on basement rock. Profile types include shallow skeletal, calcareous loams and texture contrast. Deeper calcareous loams and texture contrast soils occur on lower lying areas.

Main soils

- L1** Shallow stony loam - extensive (slopes)
- A2** Shallow calcareous loam - extensive (slopes)
- D7** Sandy loam over dispersive red clay on rock - limited (slopes)
- D3** Loam over dispersive red clay - limited (lower slopes and fans)

Minor soils

- A3** Deep calcareous loam - lower slopes and fans

Main features: The Mt. Rufus Land System is dominated by moderately steep to steep low hills and quartzite ridges with extensive rock outcrop and surface stone. There are some gentler slopes which are potentially arable, but productivity and accessibility are limited by relatively shallow stony soils and rocky outcrops on rising ground, and eroded water courses on lower ground. Retention of adequate surface cover to prevent further erosion should be a major component of grazing management.



Soil Landscape Unit summary: 12 Soil Landscape Units (SLUs) mapped in the Mount Rufus Land System:

SLU	% of area	Main features #
AAC AAG AAI AAJ	6.7 7.2 20.2 23.0	<p>Strongly dissected low hills formed on siltstones and tillites with extensive rock outcrop and surface stone. Watercourses are usually eroded.</p> <p>AAC Slopes of 10-20% and relief to 40 m. Minor water course erosion. AAG Slopes of 5-20% and relief to 50 m. AAI Slopes of 15-30% and relief to 80 m. AAJ Slopes of 30-60% and relief to 100 m.</p> <p>Main soils: <u>shallow stony loam</u> - L1 (E) and <u>shallow calcareous loam</u> - A2 (E) with <u>sandy loam over dispersive red clay on rock</u> - D7 (L) and <u>loam over dispersive red clay</u> - D3 (L) on lower slopes. This land is too steep and stony for any agricultural uses other than rough grazing. Erosion control is paramount to prevent further soil loss and watercourse damage.</p>
ABC ABD ABI ABJ	11.1 2.0 5.9 4.1	<p>Ranges with well defined linear quartzite ridges dissected by streams at right angles to the strike, giving rise to a characteristic saw tooth topography. There is extensive rock outcrop, sometimes as prominent razor back ridges (ABJ). There is 20% or more surface stone. Watercourses are commonly eroded.</p> <p>ABC Slopes of 15-30%, relief to 100 m and minor watercourse erosion. ABD Slopes of 30-50%, relief to 80 m and minor watercourse erosion. ABI Slopes of 15-30%, relief to 70 m and moderate watercourse erosion. ABJ Slopes of 30-60%, relief to 70 m and moderate watercourse erosion.</p> <p>Main soils: <u>shallow stony loam</u> - L1 (E) and <u>shallow calcareous loam</u> - A2 (E) with <u>loam over dispersive red clay</u> - D3 (L) and <u>sandy loam over dispersive red clay on rock</u> - D7 (L) on lower slopes and quartzites. This land is too steep and stony for any agricultural uses other than rough grazing. Erosion control is paramount to prevent further soil loss and watercourse damage.</p>
ESC ESD ESI	2.8 3.6 5.0	<p>Rises formed on interbedded siltstones and quartzitic rocks with 20-50% outcrop.</p> <p>ESC Undulating crests with slopes of 3-8%. ESD Low hills to 40 m high with slopes of 10-20%. ESI Rolling low hills to 40 m high with slopes of 10-20% and eroded watercourses. Up to 50% of the land is non-arable due to rock outcrop and stone.</p> <p>Main soils: <u>shallow stony loam</u> - L1 (E) and <u>shallow calcareous loam</u> - A2 (E) with <u>sandy loam over dispersive red clay on rock</u> - D7 (L) on lower slopes. This land is semi arable, with moderate slopes, rocky outcrops and shallow stony soils limiting productivity. Erosion potential is high in ESI, and ESD to a lesser extent, because of the high run off generated from rocky ground.</p>
EZH	8.4	<p>Undulating lower slopes formed on a complex of basement siltstone rises and outwash deposits on outwash fans. Slopes are 5-10%. Most watercourses are eroded.</p> <p>Main soils: <u>shallow calcareous loam</u> - A2 (E) and <u>shallow stony loam</u> - L1 (E) on rises, and <u>loam over dispersive red clay</u> - D3 (C) and <u>deep calcareous loam</u> - A3 (L) on outwash fans. This land is arable although difficult to manage because of the extent of dissection by watercourses. The soils are moderately deep, usually stony and with low to moderate fertility. Substantial runoff can be expected from surrounding steep rocky slopes, so erosion potential is high. Most of this is concentrated in watercourses which need protection - severe damage has occurred in the past.</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:

- A2** Shallow calcareous loam (Paralithic, Calcic / Lithocalcic Calcarosol)
10 - 20 cm calcareous stony loam overlying very highly calcareous soft carbonate or calcrete rubble with increasing weathering rock fragments at depth grading to weathering siltstone at about 50 cm.
- A3** Deep calcareous loam (Regolithic, Calcic Calcarosol)
10 - 20 cm calcareous stony loam overlying very highly calcareous soft carbonate continuing below 100 cm in alluvium.
- D3** Loam over dispersive red clay (Calcic, Red Sodosol)
20 - 30 cm hard stony sandy loam to loam abruptly overlying a coarsely structured red dispersive clay, calcareous from 40 cm continuing below 100 cm in alluvium.
- D7** Sandy loam over dispersive red clay on rock (Calcic, Red Sodosol)
20 - 30 cm hard stony sandy loam to loam abruptly overlying a coarsely structured red dispersive clay, calcareous from 40 cm grading to weathering rock at 50 cm.
- L1** Shallow stony loam (Lithic / Paralithic, Leptic Tenosol / Rudosol)
Up to 40 cm stony sandy loam to loam directly overlying weathering or hard basement rock which may have soft carbonate in fissures.

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

