

# MNG Mungcowie Land System

Brown Hill Range, extending from Motherowie Hut to the Broughton River

**Area:** 41.0 km<sup>2</sup>

**Annual rainfall:** 435 – 565 mm average

**Geology:** Appila Tillite and interbedded Gilbert Range Quartzite, with virtually no accumulations of outwash sediments. The rocks are at or near the surface over the entire Land System. Aeolian carbonate accumulation is common as soft segregations or rubbly layers in the upper weathering zone of the rocks.

**Topography:** The Land System is a narrow range of moderately steep to steep low hills formed on highly resistant tillites and quartzites with prominent north - south trending rock outcrops. These reefs are interrupted by a dissection pattern which cuts across the strike of the rocks. There is a discontinuous quartzite reef along the eastern side of the system which controls the drainage pattern by directing most runoff in a westerly direction. Watercourses are commonly eroded. There are small areas with slopes of less than 20%, but most of the land has slopes of 20 - 50%. There are no significant outwash fans or valley floors.

**Elevation:** 750 m in the north to 350 m at the southern end

**Relief:** Local relief is up to 70 m. Maximum overall relief in east - west section is 150 m

**Soils:** The soils are shallow to moderately deep over weathering basement rock. Some are formed directly on rock, others have carbonate subsoil, and others have well developed red clayey subsoils.

Main soils

**L1** Shallow stony sandy loam to clay loam  
**C2/D1** Loam over red clay  
**A2** Calcareous loam

**Main features:** With the exception of some minor semi arable slopes, this land is too steep and rocky for any agricultural uses other than rough grazing. The soils are highly susceptible to erosion, with watercourses being particularly vulnerable.



**Soil Landscape Unit summary:** 5 Soil Landscape Units (SLUs) mapped in the Mungcowie Land System:

SLU	% of area	Main features #
ABC	2.1	Moderately steep to steep rocky low hills of interbedded tillites and quartzites.
ABD	13.6	<b>ABC</b> Low hills with slopes of 20-30% and relief to 60 m.
ABI	64.2	<b>ABD</b> Steep ridges with slopes of 30-50% and very prominent quartzite reefs.
ABJ	12.4	<b>ABI</b> Moderately steep very strongly dissected low hills with slopes of 20-30% and relief to 70 m. Watercourses are commonly eroded. <b>ABJ</b> Steep ridges and dissected low hills with slopes of 30-50%. Watercourses are commonly eroded. Main soils: <u>shallow stony sandy loam to clay loam</u> - <b>L1</b> (E) with <u>calcareous loam</u> - <b>A2</b> (C) and <u>loam over red clay</u> - <b>C2/D1</b> (C). The hills are non-arable due to the roughness of the terrain, moderate slopes and shallow stony soils. Rocky outcrops limit accessibility. Runoff is rapid and exposure is high, so a significant proportion of rainfall does not infiltrate the soil. Erosion potential is a major management issue. Watercourses are particularly susceptible to erosion. However, areas of deeper soils are potentially productive for grazing.
ESI	7.7	Moderately steep rocky slopes of 10-20% with up to 50% of the land non accessible due to rock outcrop. Watercourses are commonly eroded. Main soils: <u>shallow stony sandy loam to clay loam</u> - <b>L1</b> (E) and <u>calcareous loam</u> - <b>A2</b> (E), with <u>loam over red clay</u> - <b>C2/D1</b> (E). Rocky reefs, shallow stony soils and moderate slopes limit cropping of these areas. The arable land is generally confined to strips between the reefs of rock. Water erosion is a potential problem because of the high runoff from the shallow soils and rocky areas.

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

(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** Calcareous loam (Paralithic, Hypercalcic / Supracalcic Calcarosol)

Calcareous loam over a layer of soft to rubbly carbonate merging with weathering rock at about 50 cm.

#### **C2/D1** Loam over red clay (Hypercalcic / Supracalcic, Red Dermosol / Chromosol)

Loam to clay loam grading to a well structured clay sometimes with a layer of soft to rubbly carbonate at depth, over weathering rock within 100 cm.

#### **L1** Shallow stony sandy loam to clay loam (Lithic, Leptic Tenosol / Rudosol)

Shallow stony sandy loam to clay loam over hard rock within 50 cm. There may be soft or rubbly carbonate in the fissures of weathering rock below the soil.

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

