MRM Mount Remarkable Land System

Steep rugged quartzite hills in the Mt. Remarkable - Alligator Gorge area between Melrose and Nectar Brook

Area: 167.2 km^2

Annual rainfall 355 – 635 mm average

Geology: Quartzites and quartzitic sandstones of the ABC Range Formation (Mambray Creek - Alligator Gorge section) and the Rhynie Formation (Mt. Remarkable section). Limited siltstone strata also occur.

Topography: Steep to very steep hills and mountains in two discrete formations

(a) Mt. Remarkable is a single massive ridge with slopes of 20 - 100% rising up to 600 m above the Willochra Plain to the east and up to 400 m above a belt of more subdued hills separating it from the Mambray Creek - Alligator Gorge formation to the west.

(b) The Mambray Creek - Alligator Gorge area is a syncline consisting of a series of very steep to precipitous ridges in a U-shape, almost entirely encircling the Alligator and Mambray Creek valleys. The Black Range forms the eastern side and The Battery forms the western side. The internal slopes of the formation (from the encircling ridges to the two creeks) are gentler (10-30%). Deep valleys and gorges have been gouged in these slopes by tributaries of the main creeks. Both formations are characterized by rugged, rocky terrain with cliffs, gorges and scree slopes and boulder beds in most watercourses.

Elevation: The lowest point is 150 m where Mambray Creek exits on to the outwash fan abutting the coastal plain. The highest point in the Mambray Creek - Alligator Gorge section is 830 m on the Black Range (south eastern edge). Mt. Remarkable (960 m) is overall the highest point in the Land System.

Relief: Maximum relief is 450 m (Mt. Remarkable summit to the upper footslope) and 550 m (crest of Black Range to bed of Mambray Creek).

Soils: Most soils are formed directly on basement rock. Some have calcareous subsurface layers, others have red clayey B horizons, but on hillslopes, all are shallow and stony. Deeper stony soils characterize creek flats.

Main soils

Soils formed on hillslopes on non calcareous basement rocks

L1b Shallow stony sandy loam
L1c Shallow stony loam
K3 Sandy loam over red clay

Minor soils

Soils formed on hillslopes on calcareous basement rocks

L1a Shallow stony loam with carbonate
A2 Calcareous loam

Soils formed on lower slope alluvium and colluvium

No descriptions recorded - observations indicate that soils are medium to coarse textured and very stony.

Main features: The Mount Remarkable Land System is steep to precipitous rangeland with shallow very stony soils. Virtually the entire area is a conservation reserve.

Soil Landscape Unit summary: 11 Soil Landscape Units (SLUs) mapped in the Mount Remarkable Land System:

SLU	% of area	Main features #
AMC AMD AME AMF AMI AMJ AMX AMZ	4.6 2.3 5.0 38.6 5.2 3.1 16.4 5.2	Moderately steep to steep rocky hills formed on coarse grained rocks. **AMC** Low hills with slopes of 20-30% and relief to 90 m. **AMD** Low hills with slopes of 30-40% and relief to 60 m. **AME** Hills with slopes of 30-60% and relief to 120 m. **AMF** Hills with slopes of 50-100% but including some gently sloping ridge crests and precipitous cliffs. There are extensive rock outcrops and boulders covering 50% of the surface. **AMI** Moderate slopes of 15-30%, dissected by deep (up to 100 m) gorges with side slopes ranging from 50% to vertical. **AMJ** Steep slopes of 25-50% with relief to 100 m and eroded watercourses. **AMX** Mt. Remarkable slopes of 40-100% with maximum relief of 450 m. Scree slopes and landslides are common. **AMZ** Summit surfaces with slopes of 5-20%. Main soils: shallow stony sandy loam - **L1b** (E) and shallow stony loam - **L1c** (E), with sandy loam over red clay - **K3** (C) and shallow stony loam with carbonate - **L1a** (M). The land is generally steep and rocky, with scattered cliffs and gorges, and shallow, stony and mostly infertile soils.
ASF	13.3	Rocky escarpment slopes formed on interbedded quartzites and sandstones. Main soils: shallow stony loam - **L1c** (E), with shallow stony sandy loam - **L1b** (E) and sandy loam over red clay - **K3** (L). These slopes are extremely steep and rocky with no access. Soils are generally shallow and low in fertility, and exposure is high.
AYD	3.1	Footslopes of 10-50%, formed on mixed quartzites and siltstones mantled by soft carbonate. There are up to 50% surface quartzite and siltstone fragments. Main soils: calcareous loam - **A2** (V), with shallow stony loam with carbonate - **L1a** (E). This land is moderately steep, with high erosion potential and shallow stony soils.
LXD	3.2	Complex of stony colluvial / alluvial deposits on lower slopes, and shallow stony soils on coarse grained basement rock on rises. Slopes range from 6% on lower margins to 20% at upper margins adjacent to the steep ridges. Watercourses between the rises are well defined and eroded in places. The Alligator Creek channel is on the western edge of the unit. No soil descriptions are available, but observation indicates that the soils on the lower slopes are medium to coarse grained and very stony. On rising ground, soils are as for AMD - AMZ. The land is very uneven, with gentle to moderate slopes interrupted by watercourses. Soils are likely to be of variable depth, but generally stony and infertile.

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

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

Detailed soil profile descriptions:

A2 Calcareous loam (Paralithic, Hypercalcic Calcarosol)
Calcareous stony loam grading to highly calcareous clay loam overlying weathering rock within 100 cm.

K3 Sandy loam over red clay (Eutrophic, Red Chromosol)
Medium thickness stony sandy loam to sandy clay loam overlying a well structured red clay grading to weathering rock within 50 cm.

L1a Shallow stony loam with carbonate (Calcareous, Paralithic, Leptic Tenosol)
Medium to thick loam overlying soft carbonate, grading to weathering rock within 100 cm.

L1b Shallow stony sandy loam (Basic, Lithic, Leptic Tenosol)
Shallow very stony grey brown loamy sand to sandy clay loam with a paler coloured A2 horizon, over hard rock within 50 cm.

L1c Shallow stony loam (Basic, Lithic, Leptic Rudosol)
Stony sandy loam to clay loam over rock within 50 cm.

Further information: DEWNR Soil and Land Program