

CAR Cartapo Land System

Range of moderately steep to steep low hills extending from Leighton to Ulooloo

Area: 64.3 km²

Annual rainfall: 395 – 495 mm average

Geology: Siltstones and fine sandstones with interbedded tillites and quartzites of the Tapley Hill and Ulupa Formations. The rocks are generally mantled by a veneer of aeolian carbonate, in soft or rubbly form in the upper zone of weathering rock. There are minor areas of locally derived alluvium.

Topography: The Land System is a north - south trending range of moderately steep to steep strongly dissected slopes with gradients generally in the range 20% to 50%, but up to 75% in places. There are limited areas of undulating to gently rolling rises and low hills where slopes are 4 - 20%. Watercourses are often eroded and scalding is common on the steeper slopes.

Elevation: 450 - 530 m along the western edge, 550 - 600 m along the eastern side. Highest point on the range is 675 m.

Relief: Maximum relief is 120 m, but commonly 30 - 80 m

Soils: Most soils are shallow to moderately deep over weathering rock. They are loamy, often with clayey subsoils, and commonly calcareous throughout.

Main soils

- L1** Shallow stony loam - rocky rises and hills
- A2** Shallow calcareous loam - rises and hills
- D1** Hard loam over red clay on rock - rises

Minor soils

- D2** Hard loam over red clay - fans / flats
- D3** Hard loam over dispersive red clay - fans / flats

Main features: The Land System is largely non arable due to moderately steep to steep slopes and rocky outcrop. Much of the land is suitable for rough grazing only. However, careful management is needed. Erosion has clearly been a problem in the past as indicated by gullied water courses and scalds. This is a result of the combination of rapid runoff from steep and rocky slopes, and the typically hard surfaced sandy loam soils. The limited areas of more gentle slopes are semi arable - rocky reefs, shallow stony soils and high erosion potential prevent regular cropping of these areas. Gully erosion is widespread in all facets of the landscape and represents a particular management problem.



Soil Landscape Unit summary: 8 Soil Landscape Units (SLUs) mapped in the Cartapo Land System:

SLU	% of area	Main features #
AAC AAI AAi AAj	5.3 29.5 21.8 5.0	Strongly dissected low hills and ridges with extensive rock outcrop and surface stone, formed on siltstones with some interbedded quartzites and tillites. AAC Slopes of 15-30% and relief to 70 m. AAI Slopes of 15-40%, relief to 120 m and eroded water courses. AAi Slopes of 15-40%, relief to 80 m, eroded water courses and areas of scalding. AAj Slopes of 20-75%, relief to 120 m, eroded water courses and areas of scalding. Main soils: <u>shallow stony loam</u> - L1 (E) and <u>shallow calcareous loam</u> - A2 (E) with <u>hard loam over red clay on rock</u> - D1 (L). Land is largely inaccessible, due to steep slopes and rockiness. Pasture productivity is limited mainly by shallow stony soils and the difficulty in undertaking improvements (sowing, fertilizing etc). There is considerable potential for erosion, particularly scalded areas. Watercourses generally have been eroded in the past and are highly susceptible to further degradation. There is also potential for landslip.
ESD ESH ESI	20.6 6.5 9.1	Rocky slopes, ridges and crests formed on mixed siltstones, quartzites and tillites with characteristic linear reefs of outcropping rock. ESD Slopes of 10-20% (some short steep slopes to 30%), relief to 60 m and minor water course erosion. ESH Slopes of 4-12% with relief to 30 m and eroded water courses. ESI Slopes of 8-20% with relief to 60 m and eroded water courses. Main soils: shallow <u>hard loam over red clay on rock</u> - D1 (E) and <u>shallow calcareous loam</u> - A2 (E), with <u>shallow stony loam</u> - L1 (L) in rocky areas. Rocky reefs, shallow stony soils and sometimes moderate slopes limit cropping. The arable land is generally confined to strips between the reefs of rock. Water erosion is a potential, because of the high runoff from the shallow soils and rocky areas. Water course erosion is a problem locally.
JCH	2.2	Lower slopes and drainage depressions with soils formed on locally derived alluvium. Slopes are 4-10%. Water courses are severely eroded in places. Main soils: <u>hard loam over dispersive red clay</u> - D3 (E) and <u>hard loam over red clay</u> - D2 (E). Soils are deep and potentially fertile, but generally have poor physical structure, particularly the D3 soils. Excessive runoff, erosion, workability problems and patchy emergence / poor root growth are common on this land. Prevention of further erosion by control of runoff from surrounding higher ground is the main management issue.

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:

L1 Shallow stony loam (Lithic, Leptic Tenosol / Rudosol)

Shallow stony loam grading to hard basement rock within 50 cm. Soft carbonate commonly occurs in rock fissures.

A2 Shallow calcareous loam (Paralithic, Calcic / Lithocalcic Calcarosol)

Medium thickness calcareous loam over soft (Calcic or Hypercalcic) to rubbly (Supracalcic or Lithocalcic) carbonate grading to weathering siltstone within 100 cm.

D1 Hard loam over red clay on rock (Calcic, Red Chromosol)

Medium thickness hard massive sandy loam to clay loam abruptly overlying a well structured red clay grading to soft carbonate merging with weathering basement rock within 100 cm.

D2 Hard loam over red clay (Calcic, Red Chromosol)

Medium to thick hard massive sandy loam to clay loam abruptly overlying a well structured red clay, calcareous with depth, grading to fine grained alluvium.

D3 Hard loam over dispersive red clay (Calcic, Red Sodosol)

Medium thickness hard sandy loam to clay loam sharply overlying a poorly structured dispersive red clay, calcareous with depth, grading to fine grained alluvium.

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

