

TAB Tableland Land System

Undulating plateau between Eudunda and St. Kitts

Area: 20.9 km²

Annual rainfall: 375 – 400 mm average

Geology: The land system is formed on fine grained rocks of the Tapley Hill and Tarcowie Formations which have been metamorphosed to phyllites and metasiltsstones. There are limited deposits of locally derived alluvium in depressions and on lower slopes. Rocks and sediments are generally mantled by secondary carbonates of aeolian origin which occur either as fine segregations, or in harder rubbly or sheet forms on higher ground.

Topography: As the name implies, the Tableland Land System is a relict land surface which stands about 200 m above the Neales Flat land surface to the east and about 150 m above the River Light valley to the west. The edges of the system are abrupt and it is rimmed by steep slopes for most of its perimeter. The topography is undulating with an overall grade to the south west. Rises are less than 30 m high and grade to gently sloping outwash fans and shallow drainage depressions. Most surface water flows into the Light catchment from the south west corner, but a small section on the eastern side drains into the Murray Basin.

Elevation: 520 m in the north and in the south east corner to 410 m in the south west

Relief: Maximum relief is 30 m

Soils: Most soils are shallow to moderately deep over weathering rock or calcrete. These include calcareous loams, non calcareous loams, and loam over red clay profiles. Deeper soils on lower slopes (alluvial accumulations) include loam over red clay and cracking clay.

Main soils:

| | |
|--------------|---|
| B3/L1 | Shallow stony loam - extensive (rises) |
| A2/B2 | Shallow calcareous loam - limited (rises) |
| D3 | Loam over dispersive red clay - limited (drainage valleys) |
| D1 | Loam over friable red clay on rock - limited (rises) |
| D7 | Loam over dispersive red clay on rock - limited (summit surfaces) |

Minor soils:

| | |
|-----------|---|
| B6 | Loam over red clay on calcrete - slopes |
| D2 | Loam over friable red clay - lower slopes |
| E2 | Red cracking clay - summit surfaces |

Main features: The Tableland Land System is undulating and generally fully arable except for minor areas adjacent to water courses (which need protection from further erosion damage), and minor moderately steep slopes. There are two distinctive soil groupings. Most rising ground is characterized by moderately shallow stony loamy soils overlying highly calcareous parent materials. These soils are well structured and moderately fertile, but productivity is limited by restricted moisture holding capacity. In lower lying areas and on the gentle slopes in the south, dispersive texture contrast soils are dominant. These are moderately deep and reasonably fertile, but are limited by poor structure in both the surface and subsoil layers. Potential productivity is reduced by excessive runoff, subsurface waterlogging and poor root growth conditions due to high soil strength.



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

| SLU | % of area | Main features # |
|-------------------|----------------------|--|
| DMZ | 14.8 | Undulating summit surface formed on phyllites with slopes of 2-5%. Main soils: <u>loam over dispersive red clay on rock</u> - D7 (V) and <u>red cracking clay</u> - E2 (L). This land is fully arable, with moderately deep soils limited mainly by their poor structure. Surfaces are mostly hard dense loams and subsoil clays are tough and dispersive. These properties indicate slow infiltration, tendency for perched water table development and patchy early growth. Gypsum may alleviate this condition. Slopes are generally gentle, but runoff has caused erosion in associated water courses in JEG . There are moderate levels of subsoil salinity in places. |
| EIB EIC EII | 20.2 29.4 14.7 | Gently undulating to undulating rises formed on metasiltstones with up to 20% surface siltstone, calcrete and quartzite. EIB Low rises with slopes of 2-4%. EIC Rises to 30 m high with slopes of 3-12% and minor water course erosion. EII Moderate slopes of 10-20% with eroded water courses. Main soils: <u>shallow stony loam</u> - B3/L1 (E) and <u>shallow calcareous loam</u> - A2/B2 (E) with <u>loam over friable red clay on rock</u> - D1 (L) and <u>loam over red clay on calcrete</u> - B6 (M). This land is generally arable although extensive patches of shallow soils and some steeper slopes in EII are of marginal cropping value. Insufficient soil depth (and hence waterholding capacity) is the main factor limiting productivity, although natural fertility is also moderately low, but readily corrected. |
| JEB JEG JEJ | 6.9 4.4 9.6 | Lower slopes and drainage depressions formed on locally derived alluvium. JEB Lower slopes of 1-3%. JEG Lower slopes of 2-4% with eroded water courses. JEJ Creek flats with eroded water courses. Main soils: <u>loam over dispersive red clay</u> - D3 (V) with <u>loam over friable red clay</u> - D2 (L). This land is generally arable although in JEJ , creek channels reduce accessibility and break up working areas. The soils are deep but limited by their poor structure. Surfaces are hard dense loams and subsoil clays are tough and dispersive. These properties indicate slow infiltration, tendency for perched water table development and patchy early growth. Gypsum may alleviate this condition. Slopes are generally gentle, but runoff has caused erosion in water courses in JEG and JEJ , indicating a need for a high level of runoff control. |

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/B2** Shallow calcareous loam (Paralithic / Petrocalcic Hypercalcic Calcarosol)
15 - 25 cm calcareous loam over a highly calcareous clay loam with siltstone and/or calcrete fragments, on sheet calcrete or calcareous weathering siltstone at about 30 cm.
- B3/L1** Shallow stony loam (Petrocalcic / Paralithic, Leptic Tenosol)
10 - 20 cm loam grading to a stony slightly more clayey subsurface layer overlying sheet calcrete or weathering rock (usually with soft carbonate accumulations), at about 35 cm.
- B6** Loam over red clay on calcrete (Petrocalcic, Red Chromosol)
20 - 30 cm hard loam over a well structured red clay with a calcrete pan within 50 cm.
- D1** Loam over friable red clay on rock (Lithocalcic, Red Chromosol)
10 - 30 cm hard loam abruptly overlying a well structured red clay with carbonate rubble at about 45 cm, grading to basement rock at depth.
- D2** Loam over friable red clay (Calcic, Red Chromosol)
10 - 30 cm hard sandy loam to clay loam with variable stone, abruptly overlying a well structured friable red clay, calcareous from about 60 cm, grading to alluvial sediments or deeply weathered rock, continuing below 100 cm.
- D3** Loam over dispersive red clay (Calcic, Red Sodosol)
10 - 50 cm hard loam, usually with a bleached and gravelly A2 layer, abruptly overlying a coarsely structured tough dispersive red clay, calcareous from 60 cm, continuing below 100 cm in alluvium.
- D7** Loam over dispersive red clay on rock (Calcic, Red Sodosol)
10 - 50 cm hard loam, usually with a bleached and gravelly A2 layer, abruptly overlying a coarsely structured tough dispersive red clay, calcareous from 60 cm, grading to weathering phyllite at 65 cm.
- E2** Red cracking clay (Epipedal, Red Vertosol)
Dark seasonally cracking calcareous clay becoming redder, more clayey and coarser structured with depth and highly calcareous from 50 cm.

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

