

# TEE Teetuppennie Land System

Moderately steep to steep eroded hillslopes of the upper catchment of Teetuppennie Creek

**Area:** 17.0 km<sup>2</sup>

**Annual rainfall:** 450 - 550 mm average

**Geology:** Tillites and siltstones of the Appila and Tapley Hill Formations

**Topography:** Moderately steep to steep dissection slopes where the westward flowing Teetuppennie Creek and its tributaries have cut into the Campbell Range. Slopes are 15-50% in the headwaters, flattening to 5% where they grade on to the Georgetown plains. The watercourses flow north west, west and south west, and occupy narrow valleys between the slopes, with little or no terrace or flood plain development. Most watercourses are severely eroded.

**Elevation:** 630 m at the top of the catchment (the watershed ridge of Campbell Range) to 360 m on the western edge adjacent to the Georgetown plains.

**Relief:** Up to 140 m, but usually between 50 and 100 m

**Soils:** Most soils are shallow to moderately deep over weathering basement rock, with loamy surfaces. Shallow calcareous loams and shallow skeletal loams are most common, but soils with red clayey subsoils are also significant. On lower slopes, soils are deeper - mostly hard loams over red clay.

### Main soils

*Soils formed over basement rock on rises*

- L1** Shallow stony loam
- A2** Shallow calcareous loam
- C2** Gradational loam on rock

### Minor soils

*Soils formed over basement rock on rises*

- D7** Loam over dispersive red clay on rock
- D1** Loam over red clay on rock

*Soils formed over alluvium on lower slopes*

- D3** Loam over dispersive red clay
- D2** Loam over red clay
- C3** Gradational clay loam

**Main features:** The Teetuppennie Land System is characterized by moderately steep to steep eroded slopes. The predominant soils on steeper slopes are shallow over rock and on lower slopes, hard setting texture contrast soils are most extensive. These are highly erodible, although moderately fertile and deep. Control of runoff and erosion throughout the System is the main soil management issue.



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

SLU	% of area	Main features #
AAI AAJ	46.5 16.6	<p>Rocky low hills formed on fine grained rocks. There is 5-10% rock outcrop and 10-20% surface quartzite, tillite and siltstone.</p> <p><b>AAI</b> Moderately steep rocky low hills with slopes of 15-30% and relief to 60 m. The hills are deeply dissected by watercourses which occupy narrow eroded gullies.</p> <p><b>AAJ</b> Steep rocky low hills with slopes of 30-50% and relief to 100 m. The hills are deeply dissected by watercourses which occupy narrow eroded gullies.</p> <p>Main soils: <u>shallow stony loam</u> - <b>L1</b> (E) and <u>shallow calcareous loam</u> - <b>A2</b> (E) with <u>gradational loam</u> - <b>C2</b> (C) on rock on lower slopes. The hills are non arable due to the roughness of the terrain, moderate slopes and shallow stony soils. Rocky outcrops limit accessibility in places. Runoff is rapid and exposure is high, so a significant proportion of rainfall does not infiltrate the soil. Extensive erosion in watercourses highlights the consequences of excessive runoff. However, there are areas of deeper fertile soils which are potentially productive for grazing.</p>
DGI	10.2	<p>Moderately inclined upper slopes with gradients of 10-20%, up to 5% rocky reefs and 10-20% surface quartzite, tillite and siltstone fragments. The slopes are dissected by eroded watercourses. The land is underlain by fine grained and quartzitic basement rocks.</p> <p>Main soils: <u>loam over dispersive red clay on rock</u> - <b>D7</b> (E) and <u>loam over red clay on rock</u> - <b>D1</b> (C), with <u>shallow stony loam</u> - <b>L1</b> (L), <u>shallow calcareous loam</u> - <b>A2</b> (L) and <u>gradational loam on rock</u> - <b>C2</b> (L). The slopes are mostly arable (except for minor rocky outcrops and gullied and dissected areas). The slopes are moderate with a consequent potential for water erosion. This is exacerbated by the predominant hard setting, poorly structured soil types which tend to seal over and shed water. Other limitations caused by poor structure are difficulty in working and patchy emergence.</p>
DXH DXI	12.8 13.9	<p>Complex of rises formed on fine grained basement rocks and outwash fans formed on locally derived fine grained alluvium.</p> <p><b>DXH</b> Gently inclined slopes of 4-10% with intervening valleys dominated by eroded watercourses.</p> <p><b>DXI</b> Moderately inclined slopes of 10-18% with intervening valleys dominated by eroded watercourses.</p> <p>Main soils: <u>loam over dispersive red clay on rock</u> - <b>D7</b> (C), <u>loam over red clay on rock</u> - <b>D1</b> (L), <u>shallow calcareous loam</u> - <b>A2</b> (L) and <u>gradational loam on rock</u> - <b>C2</b> (L) on rises, with <u>loam over dispersive red clay</u> - <b>D3</b> (M), <u>loam over red clay</u> - <b>D2</b> (L) and <u>gradational clay loam</u> - <b>C3</b> (M) on fans. This land is severely eroded as a result of excessive run-on from the steeper hills to the east. The gullies have divided the land to the extent that some is not arable. The hard setting surface soils and poorly structured subsoils, characteristic of the unit, are highly susceptible to erosion, and also cause workability problems and patchy emergence. Significant amounts of surface stone further reduce productive potential.</p>

# 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** Shallow calcareous loam (Paralithic, Calcic / Lithocalcic Calcarosol)  
Calcareous stony loam grading to soft or rubbly carbonate, over weathering rock at less than 50 cm.
- C2** Gradational loam on rock (Hypercalcic, Red / Black Dermosol)  
Medium thickness dark loam to clay loam grading to a red or black well structured clay over soft to semi-hard carbonate within 50 cm and grading to basement rock within 100 cm.
- C3** Gradational clay loam (Hypercalcic / Supracalcic, Red Dermosol)  
Clay loam grading to a well structured red clay with abundant soft to rubbly carbonate from about 60 cm, overlying alluvium.
- D1** Loam over red clay on rock (Hypocalcic / Hypercalcic, Red Sodosol)  
Medium thickness hard setting gravelly loam to clay loam sharply overlying a well structured red clay with variable soft carbonate from about 70 cm, grading to weathering rock at about 100 cm.
- D2** Loam over red clay (Hypocalcic / Hypercalcic, Red Chromosol)  
Medium thickness hard setting gravelly loam to clay loam over a well structured red clay with variable soft carbonate from about 70 cm, grading to alluvium at about 100 cm.
- D3** Loam over dispersive red clay (Hypocalcic / Hypercalcic, Red Sodosol)  
Medium thickness hard setting gravelly loam to clay loam over a tough red coarsely structured clay with variable soft carbonate from about 70 cm, grading to alluvium at about 100 cm.
- D7** Loam over dispersive red clay on rock (Hypocalcic / Hypercalcic, Red Sodosol)  
Medium thickness hard setting gravelly loam to clay loam sharply overlying a tough coarsely structured red clay with variable soft carbonate from about 70 cm, grading to weathering rock at about 100 cm.
- L1** Shallow stony loam (Calcareous / Basic, Paralithic, Leptic Tenosol)  
Stony loam, slightly more clayey with depth, usually over soft carbonate grading to weathering rock within 50 cm.

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

