

TRI The Triangle Land System

Moderately steep to steep low hills between Eudunda and Koonunga

Area: 68.3 km²

Annual rainfall: 425 - 515 mm average

Geology: The land system is underlain by a variety of basement rocks including Pepuerta Tillite, siltstones of the Ulupa and Tarcowie Formations and an unnamed formation within the Yerelina Subgroup, and Gumbowie Arkose. The land is strongly dissected so the rocks are generally near or at the surface. There are only small areas of alluvial deposition, in narrow valleys. Most rocks and sediments are mantled by fine grained carbonates, usually as soft segregations in the weathered zone but harder rubbly and sheet calcrete also occur at shallow depth.

Topography: The Triangle Land System is predominantly deeply dissected terrain of low hills with slopes of 15-75% separated by narrow drainage valleys dominated by well defined and usually eroded water courses. There are some areas of gentler slopes (5-20%), but these often include significant rocky patches.

Elevation: 500 m in the north east to 280 m in the west

Relief: Maximum relief is 90 m

Soils: Most soils are moderately shallow to shallow over basement rock or calcreted rock on slopes. Many profiles are calcareous. Deeper soils with loamy surfaces over red clay subsoils occur on both slopes and flats. There are limited deep calcareous loams.

Main soils

Soils formed on basement rock

- A2** Shallow calcareous loam
- L1/B3** Shallow stony loam
- D1** Loam over red clay on rock

Minor soils

- D2** Loam over red clay
- D3/D7** Loam over dispersive red clay
- A4** Deep calcareous loam

Main features: The Triangle Land System is mainly moderately steep to steep rocky hill country with agricultural uses restricted to grazing. The limited areas of semi arable to arable land are characterized by moderately shallow stony and calcareous soils with sub optimal water holding capacity and fertility. Erosion has been a problem in the past, and current management practices should aim at retaining adequate cover on grazing land and minimizing soil disturbance on cropping land. Watercourse protection is also required.



Soil Landscape Unit summary: 9 Soil Landscape Units (SLUs) mapped in The Triangle Land System

SLU	% of area	Main features #
AAI AAJ	55.0 11.1	Moderately steep to steep hills with variable, often extensive rock outcrop and surface stone. Watercourses are generally eroded. AAI Slopes of 15-30% and relief to 90 m. AAJ Slopes of 30-75% and relief to 90 m. Main soils: <u>shallow stony loam</u> - L1/B3 (E) and <u>shallow calcareous loam</u> - A2 (E) with <u>loam over red clay on rock</u> - D1 (L) on lower slopes and <u>deep calcareous loam</u> - A4 (M) on fans. This land is too steep and rocky for any form of cultivated agriculture, but being deeply dissected, there is a high proportion of relatively sheltered land for grazing purposes. Erosion potential is high to extreme, so retention of adequate surface cover is critical. There has been extensive erosion in the past, as indicated by the scarring of many watercourses.
AKB AKI	2.3 2.6	Stony ridges and slopes formed on Gumbowie Arkose with up to 20% outcropping rock and 20% surface stone. AKB Slopes and ridges to 20 m high with slopes of 10-20%. AKI Ridges to 60 m high with slopes of 20-40% and eroded water courses. Main soil: <u>shallow stony loam</u> - L1 (D). These slopes are too steep and stony for any agricultural uses other than rough grazing.
EGH	2.3	Undulating rises formed on Tarcowie siltstone. Slopes are 5-10% and relief up to 30 m. Some water courses are eroded. There is minor rocky outcrop. Main soils: <u>shallow calcareous loam</u> - A2 (E) and <u>loam over red clay on rock</u> - D1 (E). Although there is little rock outcrop, the soils are nevertheless relatively shallow, with consequent sub optimal moisture holding capacity. However they are moderately fertile and well structured, so could be productive in favourable seasons. Erosion potential is moderate.
ESD ESI	8.0 10.7	Moderate slopes with up to 20% rock outcrop, and abundant surface stone. Slopes are 10-20%. ESD Slopes with minor water course erosion. ESI Slopes with extensive water course erosion. Main soils: <u>shallow calcareous loam</u> - A2 (E) and <u>shallow stony loam</u> - L1/B3 (E), with <u>loam over red clay on rock</u> - D1 (L). These slopes are semi arable due to their moderate gradients and rocky outcrops. The soils between the outcrops are generally shallow and stony, limiting their potential productivity. Erosion potential is moderate to high.
EZI	6.7	Dissected footslope complex comprising about 80% rises formed on fine grained basement rocks, and about 20% drainage depressions formed on locally derived alluvium. The rises are up to 30 m high with slopes of 10-20% and up to 20% rocky outcrop. The intervening depressions have slopes of 3-8% and severe watercourse erosion. Main soils: <u>shallow calcareous loam</u> - A2 (E) and <u>shallow stony loam</u> - L1/B3 (E) on rises, with <u>loam over red clay</u> - D2 (L), <u>loam over dispersive red clay</u> - D3 (M) and <u>deep calcareous loam</u> - A4 (M) in depressions. This land is very uneven - the rises are generally too rocky for cultivation (and too steep for safe cropping) while the depressions are dissected by eroded watercourses, although their soils are deep and relatively fertile. However, if erosion is controlled, and poor surface structure is ameliorated, parts of this land could be productive.
JYJ	1.3	Isolated drainage depressions underlain by a complex of alluvium and basement rock. Slopes are 3-10% and water courses are usually eroded. Main soils: <u>loam over red clay</u> - D2 (C), <u>loam over dispersive red clay</u> - D3/D7 (C) and <u>deep calcareous loam</u> - A4 (L) on alluvium, and <u>shallow calcareous loam</u> - A2 (L), <u>shallow stony loam</u> - L1/B3 (L) and <u>loam over red clay on rock</u> - D1 (M) on basement rock. These small areas have deep moderately fertile although generally poorly structured soils. They have been severely degraded in the past.

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

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|----------------------------------------------|---------------------------------------|
| (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, Hypercalcic / Lithocalcic Calcarosol)
10-25 cm calcareous stony loam over soft carbonate or calcrete rubble with increasing content of soft weathering rock, over fresh weathering rock at 70 cm.
- A4** Deep calcareous loam (Regolithic, Hypercalcic / Lithocalcic Calcarosol)
10-20 cm calcareous loam grading to a highly calcareous clay loam over soft clayey carbonate or calcrete rubble, continuing below 100 cm.
- D1** Loam over red clay on rock (Hypercalcic, Red Chromosol)
15-40 cm hard gravelly fine sandy loam to loam abruptly overlying a red well structured clay, calcareous from 45 cm grading to weathering phyllite at 70 cm.
- D2** Loam over red clay (Hypercalcic, Red Chromosol)
15-40 cm hard gravelly fine sandy loam to loam abruptly overlying a well structured red clay, calcareous from 45 cm continuing below 100 cm on alluvium.
- D3/D7** Loam over dispersive red clay (Hypercalcic, Red Sodosol)
15-40 cm hard gravelly fine sandy loam to loam abruptly overlying a coarsely structured dispersive red clay, calcareous from 45 cm continuing below 100 cm on alluvium (D3) or weathering rock (D7).
- L1/B3** Shallow stony loam (Paralithic / Petrocalcic, Leptic Tenosol / Rudosol)
Up to 40 cm stony sandy loam to loam directly overlying weathering basement rock or sheet calcrete.

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

