# SEP Separation Creek Land System

Steep to very steep hills east of Baroota Reservoir

**Area**: 91.6 km$^2$

**Annual rainfall** 400 - 550 mm average

**Geology**: Siltstones, sandstones, tillites and dolomites of the Willochra, Appila and Skillogalee Formations. In the higher rainfall eastern parts these rocks are freshly weathered and in the west they are commonly capped by soft windblown carbonates. There is very little alluvial deposition in the system.

**Topography**: Strongly dissected steep to very steep hills of the Baroota, Separation and Waterfall Creek catchments. The system also includes the steep frontal slopes of the ranges to the south of Baroota Reservoir. These slopes drain directly on to the plains to the west. Slopes vary from 20% to over 100% and there are areas of precipitous cliffs. Watercourses occupy very narrow valleys with a strongly pronounced V-shaped cross section. Rock outcrop is extensive, up to 50% in places, and surface stones are abundant.

**Elevation**: The lowest point is 100 m at the Baroota Reservoir dam wall. The highest point is 780 m at the top of the catchment in the north east.

**Relief**: Highly variable, but more than 100 m (except on the western footslopes) and may be up to 450 m.

**Soils**: Most soils are shallow over basement rock, but there are also deeper soils with red or brown clayey subsoils forming in weathering rock.

Main soils

| | |
|---|---|
| **L1b** | Shallow stony loam |
| **A2** | Shallow calcareous loam |
| **L1a** | Shallow stony loam over calcareous rock |
| **K2** | Loam over red clay |

Minor soils

| | |
|---|---|
| **K4** | Sandy loam over brown clay |
| **C2** | Gradational loam |
| **L1c** | Shallow stony sandy loam |
| **K3** | Sandy loam over dispersive red clay |

**Main features**: The Separation Creek Land System is steep to precipitous hill country. It is virtually all non arable and mostly inaccessible to implements. Although many of the soils are moderately deep and inherently fertile, use is restricted to grazing.

**Soil Landscape Unit summary:** 10 Soil Landscape Units (SLUs) mapped in the Separation Creek Land System

| SLU | % of area | Main features # |
|---|---|---|
| AAC<br>AAE<br>AAF | 4.7<br>7.3<br>26.3 | Rocky low hills and hills formed on fine grained rocks:<br>**AAC** Rolling low hills with slopes of 15-30%, relief to 80 m and up to 20% surface tillite and quartzite.<br>**AAE** Steep hillslopes of 30-60% with relief to 150 m. There is 10-20% rock outcrop and 20-50% surface stone.<br>**AAF** Very steep slopes of more than 60% and relief to 450 m. There is 10-20% rock outcrop and 20-50% surface stone.<br>Main soils: shallow stony loam - **L1b** (E) and shallow stony loam over calcareous rock - **L1a** (E) with shallow calcareous loam - **A2** (L) and gradational loam - **C2** (L). These hills are non arable and largely inaccessible with some extremely steep and rocky slopes. Soils are generally very shallow with very limited water holding capacity. There is a high to severe erosion potential. |
| ADE | 6.2 | Steep strongly dissected rocky hills with slopes of 20-100% and relief to 150 m formed on mainly calcareous rocks (limestones, dolomites, calc-siltstones etc). There is up to 10% rock outcrop and 20% or more surface quartzite, calcrete and siltstone.<br>Main soils: shallow calcareous loam - **A2** (E), with shallow stony loam over calcareous rock - **L1a** (C), shallow stony loam - **L1b** (C) and gradational loam - **C2** (C). These hills are too steep for cropping, and pasture productivity is limited by the inaccessibility of much of the land. Soils are mostly shallow and alkaline. |
| AGE | 36.4 | Steep rocky hills with slopes of 30-100% and relief of 100 m to 200 m, formed on fine grained rocks. There is 5-10% rocky outcrop and 20% or more surface siltstone and quartzite fragments. There are sporadic landslips.<br>Main soils: shallow stony loam - **L1b** (E) and loam over red clay - **K2** (E), with sandy loam over brown clay - **K4** (L) and shallow calcareous loam - **A2** (L). This land is too steep for cropping but has high pasture production potential with inherently fertile, moderately deep soils, although accessibility is limited on the steeper slopes. |
| AHE | 7.9 | Steep slopes of 30-60% and relief of 150-250 m with 10-20% quartzite reefs, formed on fine grained rocks with interbedded quartzites. There is 10-20% surface quartzite stone.<br>Main soils: as for **AGE** (E) with shallow stony sandy loam - **L1c** (E) and sandy loam over dispersive red clay - **K3** (C). This land is non arable due to moderately steep slopes, rocky outcrops and shallow stony soils which also limit pasture productivity. Pasture improvement is hampered by limited accessibility on rocky slopes. |
| AYC<br>AYD<br>AYJ | 4.0<br>1.5<br>3.0 | Rocky hills and slopes formed on mixed siltstones, quartzites and sandstones, mantled by soft carbonates. There is extensive rock outcrop and surface stone:<br>**AYC** Rolling low hills with slopes of 20-40% and relief to 80 m. There is extensive rock outcrop and surface stone.<br>**AYD** Steep footslopes abutting the Mt. Remarkable Land System with slopes of 10% to 50%. There is extensive rock outcrop and surface stone.<br>**AYJ** Steep low hills with slopes of 30-50%, relief to 70 m and eroded watercourses. There is extensive rock outcrop and surface stone.<br>Main soils: shallow calcareous loam - **A2** (V) and shallow stony loam over calcareous rock - **L1a** (E). The hills are mostly steep and rocky with shallow stony calcareous soils and occur in the lowest rainfall part of the Land System. Use is restricted to rough grazing. |
| EPI | 2.2 | Low spurs formed on calcareous rocks between the steeper hills to the east and the plains to the west. Slopes are 12-20% and relief is up to 30 m. Many of the watercourses separating the spurs are eroded and there is minor scalding on slopes. There is 20-50% surface quartzite, siltstone and calcrete. Main soil: shallow calcareous loam - **A2** (D). These slopes are stony and irregular with frequent eroded watercourses hindering accessibility. The shallow calcareous soils have low water holding capacity and marginal fertility. |
| -R- | 0.5 | Baroota Reservoir. |

# 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** Shallow calcareous loam (Paralithic, Hypercalcic / Supracalcic Calcarosol)
Calcareous stony loam grading to soft or rubbly carbonate over weathering rock within 50 cm.

**C2** Gradational loam (Calcic, Red Dermosol)
Stony loam grading to a well structured red clay, calcareous at base forming in weathering rock between 50 and 100 cm.

**K2** Loam over red clay (Eutrophic, Red Chromosol)
Medium thickness stony loam to clay loam abruptly overlying a well structured red clay grading to weathering siltstone within 100 cm.

**K3** Sandy loam over dispersive red clay (Eutrophic, Red Sodosol)
Medium thickness hard quartz gravelly sandy loam sharply overlying a red coarsely structured dispersive sandy clay to clay grading to hard quartzite.

**K4** Sandy loam over brown clay (Eutrophic, Brown Chromosol)
Medium thickness stony sandy loam to sandy clay loam overlying a well structured brown clay grading to weathering sandstone within 100 cm.

**L1a** Shallow stony loam over calcareous rock (Calcareous, Paralithic, Leptic Tenosol)
Shallow stony sandy loam to clay loam over soft carbonate grading to weathering rock within 50 cm.

**L1b** Shallow stony loam (Basic, Paralithic, Leptic Tenosol)
Stony sandy loam to loam, with either a paler coloured subsurface layer, or a slightly more clayey subsoil, grading to weathering rock within 50 cm.

**L1c** Shallow stony sandy loam (Basic, Lithic, Leptic Rudosol)
Medium to thick stony sandy loam to sandy clay loam overlying hard rock within 50 cm.

**Further information:** DEWNR Soil and Land Program