

PIN Pinnaroo Land System

(Based on the description by A. K. McCord in "A Description of Land in the Southern Mallee of South Australia")

Plains between Pinnaroo and Parilla

Area: 184.4 km²

Annual rainfall: 310 – 350 mm average

Geology: The land is underlain by Blanchetown Clay up to 600 cm thick over Tertiary sands to sandy clays (Parilla Sand equivalent). Minor deposits of Molineaux Sand and Woorinen Formation carbonates are scattered across the surface.

Topography: The System is a flat to very gently undulating plain. About 2% of the area is occupied by low east - west oriented sandhills. Very low stony rises are scattered throughout.

Elevation: 90 - 115 m

Relief: 3 - 8 m

Soils: The soils are mostly hard sandy loams, with minor sandy and calcareous soils on rises

Main soils

Flats

D3 Sandy loam over dispersive red clay

G4 Loamy sand over dispersive brown clay

Minor soils

Rises

A5 Calcareous sandy loam

Sandhills

G1 Sand over sandy clay

Main features: The Pinnaroo Land System is an extensive plain of mainly medium to fine textured soils with dispersive clayey subsoils. The soils are moderately deep and inherently fertile with high productive potential for dryland crops, despite elevated subsoil boron and salinity, and impeded drainage. Scattered depressions may flood in wet seasons. These areas are moderately saline. For these reasons, and the presence of Blanchetown Clay within a metre of the surface, the land is generally unsuitable for irrigated crops. The minor sandhills are infertile, water repellent and prone to wind erosion.



Soil Landscape Unit summary: 4 Soil Landscape Units (SLUs) mapped in the Pinnaroo Land System:

SLU	% of area	Main features #
HkA	96.9	Flats formed on Blanchetown Clay, with occasional low rises. Sporadic depressions are prone to inundation in wet seasons. These correspond to hollows in the Blanchetown Clay, where water collects. They account for up to 5% of the area. Main soils: <u>sandy loam over dispersive red clay</u> - D3 (V), with <u>loamy sand over dispersive brown clay</u> - G4 (L) and <u>calcareous sandy loam</u> - A5 (M) on low rises. These soils are moderately deep and inherently fertile. They are productive cropping soils, although high levels of subsoil boron and moderate subsoil salinity restrict root zone depth. The dispersive clay subsoils impede water percolation, so perched water tables may develop temporarily after heavy rain. Although favourable soils for dryland cropping, potential for irrigated crops is low. The Blanchetown Clay layer prevents adequate deep drainage and leaching, and the clayey subsoil impedes near surface water movement. Salt levels will inevitably build up over time.
O-D OUI OUJ	0.4 0.6 2.1	Dune-swale complex with 30-60% low to moderate parallel sandhills overlying flats, as for HkA . O-D Individual low sandhills. OUI 30-60% moderate sandhills. OUJ 30-60% low sandhills. Main soils: <u>sand over sandy clay</u> - G1 (E) on sandhills, and <u>sandy loam over dispersive red clay</u> - D3 (E) on flats, with <u>loamy sand over dispersive brown clay</u> - G4 (M) on lower sandhill slopes. The sands are moderately deep but infertile, water repellent and prone to wind erosion. The alternating association of light and heavy soils on the rises and flats is difficult to manage.

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:

- A5** Calcareous sandy loam (Regolithic, Supracalcic Calcarosol)
Calcareous sandy loam over rubbly carbonate in a light sandy clay loam matrix, with a gradual increase in clay and carbonate content with depth, over Blanchetown Clay at about 100 cm.
- D3** Sandy loam over dispersive red clay (Hypercalcic, Red Sodosol)
Medium thickness firm sandy loam to sandy clay loam abruptly overlying a red coarsely structured clay with abundant soft carbonate from about 25 cm, grading to Blanchetown Clay at 70 cm.
- G1** Sand over sandy clay (Hypocalcic, Red Sodosol)
Thick loamy sand to sand abruptly overlying a massive red sandy clay loam to sandy clay, moderately calcareous from about 100 cm, grading to Tertiary clay.
- G4** Loamy sand over dispersive brown clay (Hypercalcic, Brown Sodosol)
Medium thickness loamy sand with a bleached A2 layer, abruptly overlying a brown or red dispersive clay with coarse columnar structure, calcareous from about 35 cm, grading to Blanchetown Clay.

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

