

# WAP Wandre Plain Land System

North - south oriented plain extending from Canowie Belt to Yongala

**Area:** 46.7 km<sup>2</sup>

**Annual rainfall:** 350 – 450 mm average

**Geology:** Fine to medium grained alluvial sediments, highly calcareous near the surface as a result of aeolian deposition of fine carbonates. The sediments overlie basement siltstones of the Saddleworth Formation, and less commonly, tillites and quartzites. These rocks protrude in places as low rises through the sedimentary cover.

**Topography:** Level plain and very gently inclined outwash fans associated with a north flowing watercourse. Slopes are less than 3%, except for small basement rock rises and narrow bands of outwash fan adjacent to rises and low hills of the Canowie Land System to the west.

**Elevation:** 510 m in the north, grading to 620 m in the south.

**Relief:** Less than 10 m, except for some minor isolated rises to 25 m.

**Soils:** Most soils are deep over alluvium. Texture contrast types with sandy loam to clay loam surfaces over red clayey subsoils are most common. Gradational calcareous and non calcareous loams are sub-dominant. Similar but shallower gradational loams occur on rises over basement rock.

### Main soils

*Soils formed over alluvium on flats and fans*

**D2** Loam to clay loam over well structured red clay

**D3** Sandy loam over dispersive red clay

**C3** Deep gradational loam

**A3** Deep calcareous loam

### Minor soils

*Soils formed on basement rock on rises*

**A2** Shallow calcareous loam

**C2** Shallow gradational loam

**D1** Loam over red clay on rock

**Main features:** The Wandre Plain Land System comprises mainly flats and gentle slopes formed on alluvium. The predominant loam over red clay soils are deep, moderately well drained and inherently fertile. They suffer however from poor surface structure which impedes water infiltration (leading to runoff and erosion on slopes, and surface ponding on flats), working difficulties and emergence problems. Of the associated soils, the sandier texture contrast soils with dispersive subsoils have the most unfavourable physical properties, while the gradational and calcareous soils are well structured, deep and moderately fertile. Isolated rises formed on protruding basement rock highs occupy a small percentage of the total area and are of little consequence.



**Soil Landscape Unit summary:** 8 Soil Landscape Units (SLUs) mapped in the Wandre Plain Land System

SLU	% of area	Main features #
EGB EGC	1.9 0.5	Rises formed on basement rock. <b>EGB</b> Low rises up to 10 m high with slopes of 2-3%. <b>EGC</b> Rises to 25 m high with slopes of 3-10%. Main soils: <u>shallow calcareous loam</u> - <b>A2</b> (E), <u>shallow gradational loam</u> - <b>C2</b> (E) and <u>loam over red clay on rock</u> - <b>D1</b> (E). These isolated rises have well drained moderately fertile soils, although often shallow. However, total area is small.
ESD	0.2	Isolated rocky rise, 20 m high, with slopes of 10-20%. Main soils: <u>shallow calcareous loam</u> - <b>A2</b> (E), and related shallow non calcareous loam over rock (E). The land is only semi arable due to rocky outcrop, shallow soils and moderate slopes.
JBB JBC	10.5 7.0	Outwash fans formed over alluvium. Watercourses are well defined and are sporadically eroded in <b>JBC</b> <b>JBB</b> Very gently inclined fans with slopes of 2-3%. <b>JBC</b> Gently inclined fans with slopes of 3-10%. Main soils: <u>sandy loam over dispersive red clay</u> - <b>D3</b> (V) with <u>loam to clay loam over well structured red clay</u> - <b>D2</b> (L) and <u>deep gradational loam</u> - <b>C3</b> (L). These soils are deep and moderately fertile, but are characterized by poor structure leading to excessive runoff and erosion, poor water use and workability and emergence problems.
JEA JEB JEQ	45.1 34.5 0.3	Flats and outwash fans formed on alluvium. <b>JEA</b> Flats with slopes of less than 1%. <b>JEB</b> Very gently sloping fans with slopes of 1-3%. <b>JEQ</b> Very gently sloping fans with slopes of 1-3% and some saline seepage. Main soils: <u>loam to clay loam over well structured red clay</u> - <b>D2</b> (E) and <u>deep gradational loam</u> - <b>C3</b> (E), with <u>sandy loam over dispersive red clay</u> - <b>D3</b> (C) and <u>deep calcareous loam</u> - <b>A3</b> (L). These soils are deep, moderately well drained and have moderately high natural fertility. Poor surface structure causing poor water infiltration, difficulty of working and impaired seedling emergence is the main problem. Saline seepages occur in the system, indicating that currently unaffected land is susceptible.

# 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, Supracalcic Calcarosol)  
Calcareous loam grading to a very highly calcareous clay loam or rubble layer merging with calcareous weathering rock within 100 cm, usually 50 cm.
- A3** Deep calcareous loam (Regolithic, Calcic Calcarosol)  
Calcareous sandy loam to clay loam, more clayey with depth grading to fine carbonate within 50 cm of the surface overlying alluvium.
- C2** Shallow gradational loam (Calcic, Red Dermosol)  
Medium thickness loam to clay loam grading to a well structured red clayey subsoil overlying highly calcareous clay loam merging with weathering basement rock within 100 cm.
- C3** Deep gradational loam (Calcic, Red Dermosol)  
Medium thickness loam to clay loam grading to a well structured red clayey subsoil overlying highly calcareous clay loam merging with alluvium.
- D1** Loam over red clay on rock (Calcic, Red Chromosol)  
Medium thickness hard loam over a well structured red clay, calcareous with depth grading to weathering rock within 100 cm.
- D2** Loam to clay loam over well structured red clay (Calcic, Red Chromosol)  
Hard loam to clay loam abruptly overlying a red friable clay with soft Class I carbonate at depth over alluvium.
- D3** Sandy loam over dispersive red clay (Calcic, Red Sodosol)  
Hard sandy loam to sandy clay loam sharply overlying a poorly structured and dispersive clay with soft Class I carbonate at depth over alluvium.

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

