

WDC Wild Dog Creek Land System

Rises and flats of the Wild Dog Creek valley between Murray Town and Melrose

- Area:** 65.9 km²
- Annual rainfall:** 450 - 525 mm average
- Geology:** Siltstones of the Willochra and Tapley Hill Formations (with beds of Brighton Limestone equivalent) on rising ground. The siltstones are deeply weathered and kaolinized over wide areas. Locally derived fine grained alluvium covers the lower slopes and valleys.
- Topography:** Gently undulating to undulating rises and alluvial flats of the Wild Dog Creek valley. The valley has a north - south orientation and is bounded on the east and the west by higher hills (Yandiah and Rosslyn Land Systems respectively). Slopes range from 3% to 15% on rising ground (mostly less than 10%) and up to 4% in the valleys. There is significant salinization on lower slopes and valleys as a result of rising watertables.
- Elevation:** 320 m where Wild Dog Creek leaves the land system to enter the Rotten Creek flood plain, to 450 m in the south west.
- Relief:** Maximum relief is 50 m on steeper slopes, but generally relief is less than 30 m.
- Soils:** Almost 60% of soils are moderately deep to shallow over weathering basement rock, although the rock is commonly deeply weathered and kaolinized. Most soils have sandy loam to loam surfaces over red clayey subsoils, but some are shallow directly overlying rock, and may be calcareous throughout. On lower slopes and flats, soils are deep, with sandy loam to loam surfaces over red or brown clayey (often dispersive) subsoils.
- Main soils:**
- Soils formed over basement rocks on rises*
- D1** Loam over red clay on rock
 - C2** Gradational loam on rock
 - D7** Sandy clay loam over dispersive red clay on rock
- Soils formed over alluvium on lower slopes*
- D3a** Sandy loam over dispersive red clay
 - D2** Sandy loam over red clay
 - F2** Sandy loam over dispersive brown clay
- Minor soils:**
- Soils formed over basement rocks on rises*
- B4** Shallow gradational loam on calcrete
 - L1** Shallow stony loam
 - A2** Shallow calcareous loam
- Soils formed on deeply weathered (kaolinized) rock*
- D3b** Loam over dispersive red clay on deeply weathered rock
- Soils formed over alluvium on lower slopes*
- C3** Deep gradational loam
 - E1** Black cracking clay
- Main features:** The Wild Dog Creek Land System is gently undulating to undulating land characterized by loamy texture contrast soils. These are moderately fertile and usually have more than 100 cm of potential rootzone depth. Poor surface structure is the main limitation. This causes reduced infiltration and water storage capacity, and affects emergence and early growth. Waterlogging and sporadic salinity on lower slopes are increasing problems.



Soil Landscape Unit summary: 11 Soil Landscape Units (SLUs) mapped in the Wild Dog Creek Land System

SLU	% of area	Main features #
DEB DEC	1.3 20.5	Rises formed on fine grained basement rocks with up to 10% surface siltstone and calcrete fragments. DEB Low rises to 10 m high with slopes of 2-5%. DEC Undulating rises with slopes of 4-12% and relief to 30 m. Main soils: <u>loam over red clay on rock</u> - D1 (E) and <u>gradational loam on rock</u> - C2 (E), with <u>deep gradational loam</u> - C3 (L) and <u>shallow gradational loam over calcrete</u> - B4 (L). The rises are arable and apart from the potential for water erosion on steeper slopes, generally have only minor limitations. These are generally physical problems including hard setting surfaces, poorly structured subsoils and shallowness of some soils.
DPB DPC	21.0 8.9	Rises formed on kaolinized fine grained rocks, with minor surface stone and no outcrop. DPB Undulating rises with slopes of 2-4% and relief to 20 m. DPC Rises with prominent crests, slopes of 4-10% and relief to 30 m. Main soils: <u>loam over dispersive red clay on rock</u> - D7 (E) and <u>loam over dispersive red clay on deeply weathered rock</u> - D3b (E), with <u>loam over red clay on rock</u> - D1 (C) and <u>gradational loam on rock</u> - C2 (L). The slopes are arable but prone to excessive runoff and erosion due to hard setting surface soils and poorly structured clay subsoils. The shallower soils have restricted waterholding capacities, the deeply weathered soils (60% of D7/D1 soils) have marginal fertility and salinity is a local problem.
ESD	5.0	Rolling rises formed on fine grained basement rock with slopes of 5-20% and relief to 30 m. There is 10-20% rocky outcrop and 10-20% surface quartzite and siltstone. Main soils: <u>loam over red clay on rock</u> - D1 (E), with <u>gradational loam on rock</u> - C2 (C), <u>shallow stony loam</u> - L1 (C) and <u>shallow gradational loam over calcrete</u> - B4 (L). These rises have gentle to moderate slopes and sufficient stone and rock outcrop to be only semi arable. The soils are moderately fertile but generally shallow, leading to moisture stress in plants in early spring. The slopes are prone to water erosion.
JAB	15.1	Gentle lower slopes of 2-4% with up to 20% surface quartzite, formed over alluvium. Main soils: <u>sandy loam over dispersive red clay</u> - D3a (E), with <u>sandy loam over red clay</u> - D2 (C), <u>deep gradational loam</u> - C3 (C) and <u>black cracking clay</u> - E1 (M). The D3a and D2 soils particularly, and also the C3 soils to a lesser extent, have hard setting surfaces which shed water (leading to erosion), seal over and set down hard, restricting workability and impairing seedling emergence. The dispersive clay subsoils in the D3 soils impede water movement, cause temporary waterlogging and affect root distributions.
JQA JQB JQE JQO	8.3 4.2 7.0 6.4	Alluvial flats and valleys formed over fine textured imperfectly drained and mildly saline alluvium. JQA Broad alluvial flats with slopes of less than 2%. JQB Gentle slopes of 2-4%. JQE Narrow flats and drainage depressions with slopes up to 3%. JQO Narrow drainage depressions with slopes to 4% and saline seepages affecting 5-10% of the land. Main soils: <u>sandy loam over dispersive brown clay</u> - F2 (E), with <u>sandy loam over dispersive red clay</u> - D3a (C) and <u>sandy loam over red clay</u> - D2 (C). These lower slopes and flats are dominated by loam over clay soils with poor structure. They have hard setting surfaces which shed water (leading to erosion), seal over and set down hard, restricting workability and impairing seedling emergence. The dispersive clay subsoils impede water movement, cause temporary waterlogging and affect root distributions. Saline seepages are common in some drainage depressions.
JYC	2.3	Complex of gentle slopes formed over alluvium (75% of area) and rises to 10 m high with slopes of up to 15% formed on basement siltstone (25% of area). There is up to 20% surface quartzite. Main soils: <u>sandy loam to loam over dispersive red clay (on deeply weathered rock)</u> - D3a/D3b (E), with <u>sandy loam over red clay</u> - D2 (C) on gentle slopes, and <u>loam over red clay on rock</u> - D1 (L), <u>gradational loam on rock</u> - C2 (M), <u>shallow stony loam</u> - L1 (M) and <u>shallow calcareous loam</u> - A2 (M) on rises. These small areas are uneven and have variable soils but are nevertheless arable. Water erosion is a potential problem although slopes are short. The dominant soils are poorly structured, leading to difficulty in working, excessive runoff and patchy emergence.



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)
Calcareous stony loam overlying weathering rock shallower than 50 cm.
- B4** Shallow gradational loam on calcrete (Petrocalcic / Supracalcic, Red Dermosol)
Medium thickness loam to clay loam, grading to a friable red clay loam to clay over sheet, rubbly or semi-hard carbonate within 50 cm overlying weathering rock within 100 cm.
- C2** Gradational loam on rock (Hypocalcic / Calcic, Red Dermosol)
Medium thickness hard setting loam to clay loam grading to a well structured red clay, calcareous with depth, grading to weathering rock within 100 cm.
- C3** Deep gradational loam (Calcic / Supracalcic, Red Dermosol)
Medium thickness clay loam to clay with up to 20% quartzite stones grading to a well structured red clay with soft to rubbly carbonate within 50 cm grading to stony alluvium.
- D1** Loam over red clay on rock (Hypocalcic / Calcic, Red Chromosol)
Medium thickness hard setting loam to clay loam abruptly overlying a well structured red clay, calcareous with depth, grading to weathering rock within 100 cm.
- D2** Sandy loam over red clay (Calcic, Red Chromosol)
Medium to thick hard clay loam to sandy loam with 20 - 50% quartzite stones, abruptly overlying a well structured red clay, calcareous at depth, over stony alluvium.
- D3a** Sandy loam over dispersive red clay (Calcic, Red Sodosol)
Medium to thick hard clay loam to sandy loam with 20 - 50% quartzite stones, abruptly overlying a coarsely structured red clay, calcareous at depth, over stony alluvium.
- D3b** Loam over dispersive red clay on deeply weathered rock (Hypercalcic, Red Sodosol)
Medium thickness hard loam, abruptly overlying a coarsely structured red clay, calcareous at depth, grading to deeply weathered, kaolinized basement rock.
- D7** Sandy clay loam over dispersive red clay on rock (Calcic / Hypercalcic, Red Sodosol)
Medium thickness hard sandy loam to clay loam abruptly overlying a coarsely structured, often dispersive red clay, calcareous with depth, grading to highly weathered (kaolinized in 60% of profiles) siltstone.
- E1** Black cracking clay (Self-mulching, Black Vertosol)
Self-mulching black cracking clay, becoming coarser structured and more clayey with depth and containing variable soft carbonate.
- F2** Sandy loam over dispersive brown clay (Calcic / Hypocalcic, Brown Sodosol)
Medium thickness hard setting clay loam to sandy loam with a bleached A2 layer, sharply overlying a brown and red mottled poorly structured dispersive clay, weakly calcareous at depth.
- L1** Shallow stony loam (Calcareous, Paralithic, Leptic Tenosol)
Shallow stony loam grading to carbonate coated weathering rock at less than 50 cm.

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

