

# MRD Moorundie Land System

Very gently undulating calcrete bench extending from Mt. Mary to south of Moorundie Conservation Park

**Area:** 743.5 km<sup>2</sup>

**Annual rainfall:** 245 – 315 mm average

**Geology:** Calcrete of the Ripon and Bakara Formations extending in a virtually unbroken sheet across the Land System. Tertiary sediments, mainly limestones, underlie the calcrete at variable depths below 100 cm. Younger Blanchetown clay caps the limestone in places.

**Topography:** Very gently undulating plain standing about 10 m above the Mt. Mary and Stonefield Plains to the west and the Blanchetown Plains to the east. This is an old land surface on which the calcrete capping is still largely intact. Internal topography includes shallow linear depressions which appear to run water after heavy rain, some low escarpments (either fault lines or solution features) and scattered circular depressions (probably coalesced sinkholes) in which silty to clayey sediments have accumulated in ancient lake beds. There are also areas of low parallel ridges which may be old dunefields, with dunes stripped down to their calcrete cores. The land surface is characterized by extensive surface calcrete and outcropping sheet calcrete.

**Elevation:** 100 m in the north to 60 m in the east

**Relief:** 10 m maximum

**Soils:** The predominant soils are shallow stony calcareous sandy loams over sheet calcrete. Other soils are minor.

#### Main soil

**B2** Calcareous sandy loam over sheet calcrete - Very extensive throughout

#### Minor soils

**A4** Calcareous sandy loam - Minor in depressions

**A5** Calcareous loam over clay - Minor in depressions

**H2** Deep sand - Minor on sandhills

**Main features:** This area is dominated by shallow to very shallow, calcareous stony soils with very limited waterholding capacity and moderately low fertility. As rainfall is also low, most of the land is uncleared and used for either light grazing or conservation.



**Soil Landscape Unit summary:** 7 Soil Landscape Units (SLUs) mapped in the Moorundie Land System:

SLU	% of area	Main features #
QHA QHB QHE	85.6 1.3 4.6	Very gently undulating elevated plain with up to 50% surface calcrete stone and sporadic sheet calcrete at the surface. There are occasional sandy rises. <b>QHA</b> Very gently undulating plains with slopes of less than 2%. <b>QHB</b> Low escarpment with slopes of 2-3%. <b>QHE</b> Linear or circular depressions which appear to collect or run water after heavy rain. Main soils: <u>calcareous sandy loam over sheet calcrete</u> - <b>B2</b> (D) with <u>calcareous sandy loam</u> - <b>A4</b> (M) and <u>calcareous loam over clay</u> - <b>A5</b> (M) in depressions. Majority of soils are very shallow and stony. Low rainfall and very limiting soil conditions restrict use to light grazing or conservation.
QJA	3.1	Gently undulating low parallel ridges, probably an old dunefield from which the sand has been stripped. There is variable surface stone up to 50%, with some stone free areas in swales. Main soils: <u>calcareous sandy loam over sheet calcrete</u> - <b>B2</b> (V) with <u>calcareous loam over clay</u> - <b>A5</b> (L) in swales between the ridges. The majority of soils are very shallow and stony. Low rainfall and very limiting soil conditions restrict use of this land to light grazing or conservation.
QMA	3.3	Very stony flats with very extensive areas of sheet calcrete at the surface. There are very few shrubs and trees. The flats are at a slightly lower elevation than the adjacent QHA. Main soil is <u>calcareous sandy loam over sheet calcrete</u> - <b>B2</b> (D).
QOA	1.2	Stony flats overlain by 10-30% low sand ridges. Main soils: <u>calcareous sandy loam over sheet calcrete</u> - <b>B2</b> (V) on stony flats and <u>deep sand</u> - <b>H2</b> (L-C) on sand ridges. Flats are non-arable due to shallow stony soils (as for QHA). Sandhills have deeper soils but are infertile and prone to wind erosion. Although marginally arable, their occurrence in a landscape of mainly non-arable soils makes them effectively non-arable.
VZ-	0.9	Flat surfaced closed depressions (old lake floors) formed on silty sediments. No soil inspections made, but land is similar to swales between calcreted ridges in QJA, viz. mainly <u>calcareous loam over clay</u> - <b>A5</b> (D). These soils are deep, well structured and moderately fertile. Productivity is limited by low rainfall and soil salinity.

# 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:****B2** Calcareous sandy loam over sheet calcrete (Petrocalcic Calcarosol)

5 - 20 cm calcareous sandy loam to loam with variable calcrete rubble over sheet calcrete at 25 cm. Very extensive throughout.

**A4** Calcareous sandy loam (Hypercalcic / Lithocalcic Calcarosol)

15 - 25 cm calcareous sandy loam to loam becoming rubbly and more calcareous with depth grading to Blanchetown Clay below 100 cm. Minor in depressions.

**A5** Calcareous loam over clay (Hypercalcic / Lithocalcic Calcarosol)

10 - 20 cm calcareous loam becoming more calcareous and clayey with depth, grading to Blanchetown Clay within 100 cm. Minor in depressions.

**H2** Deep sand (Calcareous, Arenic, Brown-Orthic Tenosol)

Very thick loose reddish brown sand, becoming slightly clayey and weakly calcareous with depth, continuing below 200 cm.

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

