WAO Warooka Land System

Gently undulating plateaux, with slopes, footslopes, and some gently undulating to undulating plains and depressions.

Area: 34.0 km^2

Landscape: Highly calcareous loamy deposits blanket an underling bedrock high. Gently undulating plateau surfaces occupy the high ground, with slopes in the intermediate elevations, and footslopes, plains and a few depressions mostly on the lower ground. The land to the east is the low lying basin of Peesey Swamp, while at the western edge of the system begin the extensive carbonate sand deposits which cover most of the 'foot' of the Peninsula.

Annual rainfall: 415 - 455 mm average

Main soils: **A1**-**A4** *Highly calcareous loams*
B1-**B2** *Shallow highly calcareous loams on calcrete*

Summary: Most soils are highly calcareous and loamy. Many soils are shallow or very shallow. There are a number of patches where soils are too shallow to be cropped. Nutrient imbalances caused by the high fine carbonate contents of these soils occur, particularly with phosphorus, manganese and zinc. However, being loamy, these soils are not as infertile as the carbonate sands to the west. Raised subsoil salinity levels are common, especially on lower slopes and in depressions. There are only a few patches where surface expression of salinity results in land being not suitable for agricultural. There are indications that the system is underlain by low permeability Blanchetown Clay type sediments, with bedrock below these. High levels of the toxic elements boron and sodium, especially in lower subsoils, are likely to occur. Some slopes are relatively steep, and many slopes are quite long: these present a moderate to moderately low potential for water erosion. Most surface soils easily become powdery, and so have potential for wind erosion.

Soil Landscape Unit summary: Warooka Land System (WAO)

SLU	% of area	Main features #
SVK SVL SVM SVO SVP SVZ	31.3 19.5 5.3 1.5 0.1 15.0	Calcareous loams: deep, moderate depth and shallow variants. Main soils: deep to moderate depth highly calcareous loams (soil **A1**-**A4**), and shallow highly calcareous loams on calcrete (soil **B1**-**B2**). **SVK** – footslopes and gently undulating plains with saline seepage (slopes 0.5-2%, 1-2e, 3s°, 2-3r). **SVL** – slopes with some saline seepage (slopes 1-3.5%, 2-1e, 3-2s, 2-3r). **SVM** – slopes with some saline seepage (slopes 3-10%, 3-2e, 2-3s, 2-3r). **SVO** – depression with moderate to marginal saline seepage (slopes 0-1.5%, 3-4s°, 2-3r). **SVP** – slight depression with marginal salinity (lower hillside seep, slopes 0-1%, 4-3s, 1-2r). **SVZ** – gently undulating plateau surface with some saline seepage (slopes <1%, 2-3s, 2-3r).
QKK QKL QKM QKMs QKO	9.0 0.5 0.8 0.7 3.4	Calcareous loams: shallow with some deeper variants. Main soils: shallow highly calcareous loams on calcrete (soil **B1**-**B2**). With some deep to moderate depth highly calcareous loams (soil **A1**-**A4**). **QKK** – footslopes and undulating to gently undulating plains with saline seepage (slopes 0-2%, 1-2e, 3s°, 5-10% outcrop, 3-4r).

QKT QKZ	0.2 9.0	**QKL** – semi arable upper slopes with some saline seepage (slopes 1.5-3.5%, 2e, 3-2s, 30-40% outcrop, 4r). **QKM** – upper slopes with some saline seepage (slopes 3-10%, 3-2e, 2-3s, 3-4r). **QKMs** – upper slopes with saline seepage (slopes 3-8%, 3-2e, 3s, 3-4r). **QKO** – low lying undulating to gently undulating plain/depression with saline seepage (slopes 0-1.5%, 3-4s^{+}, 5% outcrop, 3-4r). **QKT** – slight depression with marginal salinity (slopes <1%, 4s^{x}, 3-4r). **QKZ** – gently undulating plateau surface with some saline seepage (slopes 0-1%, 2-3s, 3-4r).
QHB QHC QHK QHL QHZ	0.7 0.6 1.1 0.3 1.0	Calcareous loams: dominantly shallow. Main soils: mostly very shallow highly calcareous loams on calcrete (soil **B1**-**B2**). Minor deeper highly calcareous loams may occur (soil **A1**-**A4**). **QHB** – non arable stony rises at the top of upper slopes (slopes 0-2.5%, 2-1e, 2-1s, 5-4r). **QHC** – non arable upper slopes (slopes 1.5-8%, 3-2e, 2s, 5-4r). **QHK** – non arable low lying undulating to gently undulating plains with saline seepage (slopes 0-1.5%, 3-4s^{+}, 5-4r). **QHL** – non arable slope with some saline seepage (slopes 1.5-3.5%, 2-1e, 3-2s, 5-4r). **QHZ** – semi arable stony low rise/plateau surface (slopes 0-1%, 1e, 2-3s, 5-4r).
ZA-	0.2	Saline depression. Main soils: saline soil (soil **N2**: mostly salinised **A1**-**A4**). **ZA-** – saline depression (slopes <1%, 5s, 1-2r).

Classes in the 'Soil Landscape Unit summary' table (eg. 2-1e, 3w, 2y, etc) describe the predominant soil and land conditions, and their range, found in Soil Landscape Units. The number '1' reflects minimal limitation, while increasing numbers reflect increasing limitation. Letters correspond to the type of attribute:

a - wind erosion	e - water erosion	f - flooding	g - gullying
r - surface rockiness	s - salinity	w - waterlogging	y - exposure

Detailed soil profile descriptions:

A1-**A4** *Highly calcareous loams* [Supravescent-Hypervescent Hypercalcic-Lithocalcic Calcarosol]
Highly calcareous grey-brown loam, or sometimes fine sandy loam, grading to brown clay loam or light clay, often with hard carbonate fragments. High silt contents are common. Darker coloured subsoils also occur. Subsoils are commonly dispersive. Calcrete layers can occur at moderate depth. Soils are usually dominated by carbonate particles.

B1-**B2** *Shallow highly calcareous loams on calcrete* [Supravescent-Hypervescent Petrocalcic Calcarosol]
Highly calcareous grey-brown loam, or fine sandy loam or light clay loam, overlying calcrete at shallow to very shallow depth. High silt contents are common. There is often little to differentiate surface soils and subsoils, however, subsoils commonly occur which have an increase of texture to silty clay loam or clay loam, or which are darker coloured. Soils are usually dominated by carbonate particles.

Further information: DEWNR Soil and Land Program