

MAN Mantung Land System

(Based on the description by Potter, Wetherby and Chittleborough (1973) in "A Description of the Land in County Albert, County Alfred and Part of County Eyre, South Australia". Dept. of Agric. S.A. Soil Cons. Branch LD1, and A. K. McCord in "A Description of Land in the Southern Mallee of South Australia").

Stony flats scattered through the western parts of the northern Mallee from Swan Reach to Blanchetown and east to Tuscan.

Area: 1,049.6 km²

Annual rainfall: 255 – 320 mm average

Geology: The entire area is underlain by calcrete forming a thick cap over Bungunnia Limestone or Blanchetown Clay. Overlying the calcrete, but confined to limited areas are deposits of Woorinen Formation carbonates which are medium grained and usually rubbly, and windblown Molineaux Sand.

Topography: The landscape is characteristically a very stony gently undulating plain. Scattered across the plain are distinctive (often circular) depressions, undulating rises, and low rounded east - west oriented sandhills.

Elevation: 30 - 90 m

Relief: 3 - 9 m

Soils: The characteristic soils are shallow over sheet calcrete. Less common are rubbly calcareous sandy loams and deep sands.

Main soils

Flats

B2 Shallow rubbly calcareous sandy loam

Rises

A4 Moderately deep rubbly calcareous sandy loam

Depressions

B3 Gradational sandy loam

Minor soils

Sandhills

H2 Deep sand

Main features: The Mantung Land System is dominated by stony and generally non-arable gently undulating plains. Much of the area is not cleared, or has been allowed to revert to scrub. Isolated flats and rises of arable, albeit shallow and stony, calcareous sandy loams have limited productive potential. Low sandhills scattered across the landscape are arable but difficult to manage as part of the overall system, and are characterized by infertile, water repellent and erosion prone sands.



Soil Landscape Unit summary: 10 Soil Landscape Units (SLUs) mapped in the Mantung Land System:

SLU	% of area	Main features #
Q-A	0.2	Very stony land with extensive sheet calcrete at the surface.
QHE	0.1	Depressions. Typical soil is <u>shallow rubbly calcareous sandy loam</u> - B2 (D). These soils are shallow and stony with impenetrable calcrete at shallow depth and are generally non-arable. The land is used for light grazing of grasses and native shrubs.
QMA QOA	59.2 14.2	Stony flats formed on sheet calcrete, with up to 30% low rounded east-west sandhills, and minor low rises. QMA Flats with less than 10% low sandhills, and less than 10% low rises. QOA Flats with 10-30% low sandhills, and less than 10% low rises. Main soils: <u>shallow rubbly calcareous sandy loam</u> - B2 (V), with <u>moderately deep rubbly calcareous sandy loam</u> - A4 (M), <u>gradational sandy loam</u> - B3 (M) and <u>deep sand</u> - H2 (M-C) on sandhills. These flats are very stony and the soils generally shallow. Most of the land is non arable. The sandhills have deeper soils but they have low fertility and are prone to wind erosion. Although arable, the extensive intervening stony flats make cropping across large areas impracticable.
RCE	6.0	More or less circular depressions within the calcrete flats, probably solution holes. Main soils: <u>gradational sandy loam</u> - B3 and <u>shallow rubbly calcareous sandy loam</u> - B2 . Soils are shallow, but often deep enough for cropping. However, waterholding capacity is the main limitation.
SdA SfB	4.1 9.5	Gently undulating flats and undulating low rises, with 10-30% very stony areas, and up to 30% low rounded sandhills. SdA Gently undulating flats and very low rises with less than 10% sandhills. SfB Undulating low rises with 10-30% low sandhills. Main soils: <u>moderately deep rubbly calcareous sandy loam</u> - A4 (E-V), and <u>shallow rubbly calcareous sandy loam</u> - B2 (C) on stony areas, with <u>deep sand</u> - H2 (M-C) on sandhills. Soils are generally deeper in these areas than in QMA . This allows a greater proportion of the land to be cropped, although water holding capacity and stoniness are still the main factors affecting productivity.
U-D UUI UUJ	2.1 3.8 0.8	Dunefields of mainly low (some moderate) rounded east-west sandhills superimposed on the calcrete flats. The proportion of land area occupied by sandhills is rarely more than 50%. U-D Single low sandhills. UUI 30-60% moderate sandhills. UUJ 30-60% low sandhills. Main soils: <u>deep sand</u> - H2 (E) on sandhills, and <u>shallow rubbly calcareous sandy loam</u> - B2 (E) on intervening flats. The sands are infertile, water repellent and highly susceptible to wind erosion. This land is difficult to manage because a) the sandhills need special soil conservation practices to minimize erosion and b) the intervening flats have highly contrasting soils, many areas of which are non-arable.

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:*Flats***B2** Shallow rubbly calcareous sandy loam (Petrocalcic, Lithocalcic Calcarosol)

Thin calcareous sandy loam to light sandy clay loam over a highly calcareous sandy clay loam with abundant carbonate nodules on sheet calcrete at about 30 cm. The calcrete is underlain by softer very highly calcareous sandy clay loam with Blanchetown Clay invariably occurring at depth, often below 200 cm.

*Rises***A4** Moderately deep rubbly calcareous sandy loam (Regolithic, Lithocalcic Calcarosol)

Thin to medium thickness calcareous sandy loam to light sandy clay loam over a highly calcareous sandy clay loam with abundant carbonate nodules, grading to softer very highly calcareous sandy clay loam.

*Depressions***B3** Gradational sandy loam (Lithocalcic, Red Kandosol)

Medium thickness sandy loam grading to a red massive sandy clay loam over Class III C carbonate rubble or sheet calcrete at about 40 cm.

*Sandhills***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](#)

