WHH White Hut Land System

Gently undulating rises and sandhills between Murray Bridge and Tepko

Area: 102.7 km^2

Annual rainfall: 325 – 375 mm average

Geology: The land is underlain by clayey sand to sandy clay Tertiary sediments, partly capped by Blanchetown Clay. All are covered by rubbly calcretes. Windblown Molineaux Sands overlie about a quarter of the land. There are minor alluvial deposits in drainage flats.

Topography: The land system is a gently undulating mallee landscape which has been separated into several discrete sections by watercourses flowing across the plains from the ranges to the River Murray. The landscape is gently undulating, and comprises extensive areas of alternating rises and flats, broad flats, and low dunefields. The rise-flat complex is formed on rubbly calcrete and overlain by 20 - 30% low sandhills and spreads. The broad flats are underlain by calcrete at shallow depth, with little sand. The dunefields are on gently undulating rises and comprise 30 - 60% low rounded east - west sandhills.

Elevation: 30 - 130 m

Relief: 5 - 10 m

Soils: The landscape is dominated by calcareous sandy loams sandy soils

Main soils
Loamy flats and rises
A4 Rubbly calcareous sandy loam
Sandhills and sand spreads
G1 Sand over sandy clay
H2a Deep sand
H2b Calcareous sand

Minor soils
Loamy flats and rises
A5 Calcareous sandy loam over clay
B2 Shallow stony calcareous sandy loam
Drainage depressions
D5 Loamy sand over red sandy clay

Main features: The White Hut Land System is a mallee landscape characterized by gently undulating rises and flats with calcareous sandy loams (usually rubbly) and sandy texture contrast soils, and low sandhills with deep sands. The sandy soils are infertile and prone to wind erosion. The calcareous soils are usually moderately shallow, or have significant rubble, so waterholding capacity is a key limitation to productivity. Induced nutrient deficiencies caused by the calcareous soils are also a potential problem.

Soil Landscape Unit summary: 6 Soil Landscape Units (SLUs) mapped in the White Hut Land System

SLU	% of area	Main features #
JUE	0.8	Drainage depressions formed on coarse to medium grained alluvium. Main soil: loamy sand over red sandy clay - **D5** (D). These soils are moderately deep and marginally fertile (low clay content surfaces). The loamy sands are prone to compaction and are susceptible to erosion.
QVB	0.6	Stony slopes formed on sheet calcrete. Main soil: shallow stony calcareous sandy loam - **B2** (D). These isolated areas are largely non arable due to shallow stony soils and surface rock, and are mostly uncleared.
SUA SUB	4.1 52.5	Flats and rises underlain by mixed rubbly calcrete and soft carbonates of the Woorinen Formation. 20-30% of the land surface is overlain by windblown sand as low dunes or sand spreads, and 10-20% of the land is very stony, often on low flat benches. **SUA** Broad flats. **SUB** Gently undulating rises and flats. Main soils of **SUB**: rubbly calcareous sandy loam - **A4** (E) on rises and flats, with calcareous sand - **H2b** (C), shallow stony calcareous sandy loam - **B2** (L) and deep sand - **H2a** (L), all mainly on rises, and calcareous sandy loam - **A5** (M). The broad flats of **SUA** are dominated by rubbly calcareous sandy loam - **A4** (V), with calcareous sandy loam - **A5** (L). Soil depth is variable, determined by underlying carbonate layers, but shallow soils are generally limited. The shallow soils on calcrete are the most likely to regularly impose moisture stress. The sandy soils have low fertility and are prone to wind erosion, and probably water repellence in some seasons. The rubbly and loamy calcareous soils are moderately productive, their main limitations being marginal fertility and waterholding capacity.
SeB	1.4	Moderately stony slopes formed on calcrete. Main soils: rubbly calcareous sandy loam - **A4** (E) and shallow stony calcareous sandy loam - **B2** (E). This land is fully arable, but the soils are generally shallow and stony. Lack of waterholding capacity is the main limitation to productivity.
UBJ	40.6	Gently undulating rises with 30-60% low parallel east - west oriented sandhills. Main soils: deep sand - **H2a** (L), calcareous sand - **H2b** (L) and sand over clay **- G1** (L) on sandhills, with sand over clay - **G1** (C), rubbly calcareous sandy loam - **A4** (L) and calcareous sandy loam - **A5** (M) in swales. The sandhill soils are infertile and susceptible to wind erosion and water repellence in some seasons. The swale soils are more fertile, although 25% are sandy. The calcareous soils are moderately productive soils, limited mainly by sub-optimal waterholding capacity and fertility.

PROPORTION codes assigned to soils within Soil Landscape Units (SLU):

(D) Dominant in extent (>90% of SLU)
(V) Very extensive in extent (60–90% of SLU)
(E) Extensive in extent (30–60% of SLU)
(C) Common in extent (20–30% of SLU)
(L) Limited in extent (10–20% of SLU)
(M) Minor in extent (<10% of SLU)

Detailed soil profile descriptions:

A4 Rubbly calcareous sandy loam (Supracalcic / Lithocalcic Calcarosol)
Calcareous sandy loam to loamy sand over Class III B or III C carbonate from about 20 cm. Rubble content decreases with depth, while clay content increases.

A5 Calcareous sandy loam over clay (Hypercalcic Calcarosol)
Calcareous sandy loam becoming more clayey and calcareous with depth over Class I to III A carbonate at about 45 cm, grading to Blanchetown Clay from about 100 cm.

B2 Shallow stony calcareous sandy loam (Petrocalcic Calcarosol)
Calcareous sandy loam over sheet calcrete at about 20 cm.

D5 Loamy sand over red sandy clay (Calcic, Red Chromosol)
Medium to thick loamy sand abruptly overlying a massive red sandy clay loam to sandy clay, calcareous within 20 cm of the top of the clay, grading to clayey sand to sandy clay alluvium.

G1 Sand over sandy clay (Calcic / Supracalcic, Brown Sodosol)
Medium to thick sand sharply overlying a brown or red dispersive sandy clay loam to sandy clay with soft to rubbly carbonate from about 60 cm.

H2a Deep sand (Arenic Rudosol)
More than 100 cm loose sand.

H2b Calcareous sand (Hypercalcic Calcarosol)
Thick to very thick slightly to moderately calcareous sand grading to a calcareous sandy loam to sandy clay loam over Class III A carbonate from about 65 cm.

Further information: DEWNR Soil and Land Program