

CMB Coombe Land System

Belt of sand dune country along the southern boundary of Hundred of Coombe

Area: 67.0 km²

Annual rainfall: 470 – 510 mm average

Geology: The System is underlain by sandy clay and limestone sediments of the Padthaway Formation, extensively overlain by siliceous Molineaux Sand. Occasional ridges of calcarenite (Bridgewater Formation of old coastal dunes) protrude through the sediments and sands in places.

Topography: The Land System is a belt of moderate to high jumbled sand dunes with a distinct east - west orientation. Between the dunes are extensive flats which are covered by sand spreads and low linear sand rises. The flats are being increasingly affected by rising saline water tables, especially in the west where the elevation is lower. Some isolated swamps have developed in depressions in these areas. Also included are two stony calcarenite ridges

Elevation: 15 - 60 m

Relief: Maximum relief is 20 m

Soils: Sandy soils dominate. These include deep sands and sands with more clayey subsoils. Wet sandy texture contrast soils and shallow soils over calcrete are minor overall.

Main soil

Soils on sandy rises

H3 Deep bleached sand

Minor soils

Soils on sandy flats

B7 Sand over friable yellow brown clay on calcrete

G3 Thick sand over friable clay

Soils on sandy rises

G2 Sand grading to sandy clay loam

Soils on wetter flats

G4 Sand over yellow and grey clay

Soils on stony rises

B3 Shallow stony loamy sand over calcrete

B8 Thick sand over calcrete

Main features: The Coombe Land System is characterized by deep infertile sands on non arable dunes, mixed with gently undulating flats also with mainly sandy soils but usually having clayey subsoils. Fertility is the main management issue on the flats, although rising saline water tables are diminishing productive potential in the west. Lower lying flats with shallow texture contrast soils over calcrete are at greatest risk of salinity and waterlogging.



Soil Landscape Unit summary: 5 Soil Landscape Units (SLUs) mapped in the Coombe Land System:

| SLU | % of area | Main features # |
|-----|-----------|--|
| MJB | 1.2 | <p>Low ridges (relict coastal dunes) up 15 m high, with slopes of 3-15%. They are partially overlain by wind blown sand spreads. There is variable surface stone on the non sandy slopes.</p> <p>Main soils: <u>shallow stony loamy sand over calcrete</u> - B3 (E) and <u>thick sand over calcrete</u> - B8 (L) on stony areas, with <u>deep bleached sand</u> - H3 (L) and <u>sand grading to sandy clay loam</u> - G2 (L) on sand spreads.</p> <p>Key properties:</p> <p>Drainage: Rapidly to well drained.</p> <p>Fertility: Moderately low on stony soils, to very low on deep sands.</p> <p>Physical condition: Surface soils are soft to loose and do not restrict root growth. Where subsoils occur they are friable and not restrictive to root growth.</p> <p>AWHC: Very low to low on stony soils, due to shallow depth to hard calcrete. Moderate on sandy soils.</p> <p>Salinity: Low.</p> <p>Erosion potential: Water: Low to moderate, depending on slope. Wind: Moderately low on stony ground to high on sand spreads.</p> <p>Water repellence: Low to slight on stony land. Strong on sand spreads.</p> <p>Rockiness: Variable to 50%, usually less than 20%. Nil on sand spreads.</p> <p>Other: The higher rises are exposed.</p> <p><u>Summary:</u> Shallow, stony soils of marginal fertility with deep, low fertility, water repellent and erodible sands.</p> |
| NAA | 3.6 | <p>Flats with occasional very low stony or sandy rises formed on calcreted sediments of the Padthaway Formation. Groundwater tables are within two metres of the surface.</p> <p>Main soils: <u>sand over friable yellow brown clay on calcrete</u> - B7 (E) and <u>sand over yellow and grey clay</u> - G4 (E).</p> <p>Key properties:</p> <p>Drainage: Well to imperfectly drained, depending on the nature of the subsoil clay and depth to water table.</p> <p>Fertility: Moderately low.</p> <p>Physical condition: There are no surface impediments to root growth. Subsoils are variable - dispersive clays in G4 soils are limiting.</p> <p>AWHC: Moderately low.</p> <p>Salinity: Moderately low to moderately high. This land is being increasingly affected by rising saline water tables.</p> <p>Erosion potential: Water: Low. Wind: Low to moderately low.</p> <p>Water repellence: Slight to moderate.</p> <p>Rockiness: Up to 5% surface calcrete stone with heavier patches.</p> <p><u>Summary:</u> Slightly to moderately saline flats dominated by soils with sandy surfaces and thin clayey subsoils over calcrete. Drainage is moderate, fertility is moderately low.</p> |
| O-A | 69.5 | <p>Moderate to steep longitudinal, parabolic or jumbled siliceous sand hills, more than 12 metres high, formed on Molineaux Sand.</p> <p>Main soils: <u>deep bleached sand</u> - H3 (V), <u>sand grading to sandy clay loam</u> - G2 (C) on low rises and <u>thick sand over friable clay</u> - G3 (L) on lower slopes and swales.</p> <p>Key properties:</p> <p>Drainage: Rapid.</p> <p>Fertility: Very low.</p> <p>Physical condition: No limitations (soft to loose sand). Clayey subsoils, where present, are friable.</p> <p>AWHC: Moderately low to moderate.</p> <p>Salinity: Low.</p> <p>Erosion potential: Water: Low. Wind: High to very high.</p> |



| | | |
|-----|------|---|
| | | <p>Water repellence: High. Rockiness: Nil.</p> <p><u>Summary:</u> The land is dominated by high sandhills with very low fertility, and prone to water repellence and wind erosion.</p> |
| OAK | 25.5 | <p>Gently undulating flats with low sand rises and sand spreads formed over Padthaway Formation sediments overlain by Molineaux Sand.</p> <p>Main soils: <u>deep bleached sand</u> - H3 (E) on rises, <u>sand grading to sandy clay loam</u> - G2 (C) on rises and flats, <u>thick sand over friable clay</u> - G3 (L) and <u>sand over friable yellow brown clay on calcrete</u> - B7 (M) on flats.</p> <p>Key properties:</p> <p>Drainage: Rapidly to well drained. Fertility: Low to very low. Physical condition: There are no impediments to root growth. AWHC: Moderately low to moderate. Salinity: Low. Erosion potential: Water: Low. Wind: Moderate to high.</p> <p>Water repellence: High. Rockiness: Nil.</p> <p><u>Summary:</u> Isolated low sandy rises with very low fertility, well drained soils prone to water repellence and erosion.</p> |
| ZS- | 0.2 | <p>Swampy depressions: Saline swamps formed on calcareous clays and marls, and commonly veneered by a layer of black clay. These are natural features, representing the lowest points in the local landscape. They are usually seasonally inundated. Highly saline water tables are at or near the surface all year. Typical vegetation is tea tree, cutting grass, samphire (or commonly bare).</p> <p>Main soils: <u>wet highly saline grey clay</u> - N2b (E) and <u>wet saline calcareous loam</u> - N2c (E) and <u>wet saline sand</u> - N2a (C).</p> <p>Key features:</p> <p>Drainage: Very poorly drained. Fertility: Not relevant. Physical condition: Not relevant. AWHC: Not relevant. Salinity: Very high to extreme. Erosion potential: Water: Low. Wind: Low.</p> <p>Water repellence: Nil Rockiness: Nil.</p> <p><u>Summary:</u> The swamps have little or no agricultural value, and where original vegetation exists, damage by livestock is likely.</p> |

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:

- B3** Shallow stony loamy sand over calcrete (Petrocalcic, Leptic Tenosol)
Loamy sand to loam with variable rubble and slight clay increase with depth overlying calcreted calcarenite shallower than 50 cm.
- B7** Sand over friable yellow brown clay on calcrete (Petrocalcic, Brown Chromosol)
Medium thickness sand overlying yellowish brown friable clay on limestone or calcreted sandy clay within 50 cm.
- B8** Thick sand over calcrete (Petrocalcic, Bleached-Leptic Tenosol)
Thick bleached sand over calcarenite.
- G2** Sand grading to sandy clay loam (Mesotrophic, Yellow Kandosol)
Thick bleached sand, organically darkened at surface, over a yellow and red friable massive sandy clay loam.
- G3** Thick sand over friable clay (Calcic, Brown Chromosol)
Thick to very thick bleached sand to loamy sand with an organically darkened surface abruptly overlying a friable yellowish brown and red sandy clay, with soft carbonate accumulations at depth.
- G4** Sand over yellow and grey clay (Hypercalcic / Lithocalcic, Grey Sodosol)
Medium thickness loamy sand abruptly overlying a grey and yellow brown mottled clay (seasonally saturated), with rubbly to soft carbonate at depth.
- H3** Deep bleached sand (Basic, Arenic, Bleached-Orthic Tenosol)
Thick to very thick bleached sand, organically darkened at the surface over yellow sand continuing below 100 cm.

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

