

SHALLOW SAND OVER SANDY CLAY ON CALCRETE

General Description: Sand to loamy sand over a thin brown to red sandy clay overlying calcrete at shallow depth

Landform: Flat to gently undulating plains with frequent low sandhills and occasional swampy depressions.

Substrate: Interbedded lagoonal sandy clays and limestones (Padthaway Formation)

Vegetation: Mallee heath



Type Site:	Site No.:	MM107	1:50,000 mapsheet:	6826-2 (Culburra)
	Hundred:	Colebatch	Easting:	397650
	Section:	44	Northing:	6020350
	Sampling date:	10/03/1993	Annual rainfall:	500 mm average

Flat. Soft surface, no stones

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-13	Dark greyish brown loose sand. Clear to:
13-25	Very pale brown (bleached) loose sand. Sharp to:
25-33	Dark yellowish brown hard massive slightly calcareous sandy clay. Sharp to:
33-70	Laminar calcrete. Clear to:
70-94	White hard massive very highly calcareous sandy loam with 20-50% hard carbonate fragments (60-200 mm). Clear to:
94-125	Pale olive very hard highly calcareous sandy clay with weak coarse blocky structure and 10-20% hard carbonate fragments. Gradual to:
125-160	Pale yellow massive hard highly calcareous sandy clay. Abrupt to:
160-170	Limestone.



Classification: Bleached, Petrocalcic, Brown Chromosol; medium, non-gravelly, sandy / clayey, shallow



Summary of Properties

- Drainage:** Well drained. The soil never remains saturated for more than a few days.
- Fertility:** Inherent fertility is low, as indicated by the exchangeable cation data. Phosphorus deficiencies are widespread, and nitrogen levels depend on legume condition of pastures. Zinc and copper deficiencies are likely from time to time. Manganese is required by lupins. At the sampling site, phosphorus levels are low, copper marginal and organic carbon low.
- pH:** Slightly acidic at the surface, strongly alkaline with depth.
- Rooting depth:** 70 cm in pit.
- Barriers to root growth:**
- Physical:** Calcrete and subsequent limestone layers severely restrict growth.
 - Chemical:** pH is high from 70 cm, but few roots penetrate the calcrete. Low nutrient retention capacity is the main reason for sub-optimal growth.
- Waterholding capacity:** 35 mm in the rootzone.
- Seedling emergence:** Satisfactory, but can be reduced by water repellence in dry years.
- Workability:** Soft to loose surface is easily worked.
- Erosion Potential:**
- Water:** Low.
 - Wind:** Moderately low to moderate.

Laboratory Data

Depth cm	pH H ₂ O	pH CaCl ₂	CO ₃ %	EC1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	Boron mg/kg	Trace Elements mg/kg (DTPA)				CEC cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
										Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
Paddock	6.5	5.8	<1	0.08	0.52	0.8	8	190	1.3	0.18	-	5.2	0.74	5.8	4.53	0.72	0.05	0.61	0.9
0-13	6.8	6.3	<1	0.12	0.91	0.9	6	220	1.0	0.08	-	3.4	0.65	4.1	3.69	0.72	0.08	0.70	2.0
13-25	6.8	6.2	<1	0.07	0.41	0.2	2	140	0.59	<0.05	-	0.55	0.06	2.2	1.44	0.39	0.02	0.44	na
25-33	7.9	7.2	1	0.15	0.89	0.4	3	430	1.7	0.10	-	0.73	0.08	13.2	7.55	2.33	0.35	1.22	2.4
33-70	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
70-94	9.3	8.3	11	0.10	0.76	<0.1	<2	47	0.69	0.06	-	0.15	<0.06	1.4	1.68	0.58	0.09	0.13	na
94-125	9.4	8.2	20	0.24	1.88	<0.1	<2	210	2.2	0.18	-	0.18	0.12	6.7	3.72	2.59	0.84	0.54	12.5
125-160	9.5	8.3	12	0.35	2.62	<0.1	<2	330	3.6	0.09	-	0.20	0.06	8.7	2.79	3.89	1.62	0.77	18.6

- Note:** Paddock sample bulked from cores (0-10 cm) taken around the pit.
CEC (cation exchange capacity) is a measure of the soil's capacity to store and release major nutrient elements.
ESP (exchangeable sodium percentage) is derived by dividing the exchangeable sodium value by the CEC.

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

