

CA1: Shelly Calcarosol

General description of the soil

A highly calcareous soil with little pedological development. The fine earth material consists of sand-sized shell fragments derived from the sandy calcarenite parent material.

Distribution:	A common soil adjacent to the coastline of South Australia and south-west Western Australia.
Typical land use:	Pastures.
Common variants:	Similar soils occur but with lesser pedological development (Shelly Rudosols and Shelly Tenosols).
World Reference Base:	Hypercalcic Calcisol.
Other names:	Widely known as Calcareous Sands.

Environment and location of the example profile

Landform:	Dunefield rise.
Parent material or substrate:	Sandy Calcarenite.
Drainage class:	Rapidly drained.
Surface condition:	Loose.
Site disturbance:	Cultivation – rainfed.
Native vegetation:	Mallee shrubland dominated by <i>Eucalyptus diversifolia</i> with <i>Melaleuca lanceolata</i> .

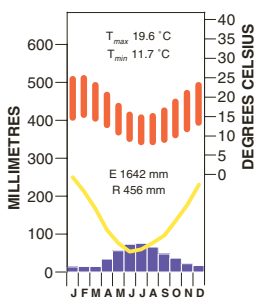


The soil is largely comprised of calcium carbonate, Yorke Peninsula, South Australia

Site location



Site climate



Soil morphology

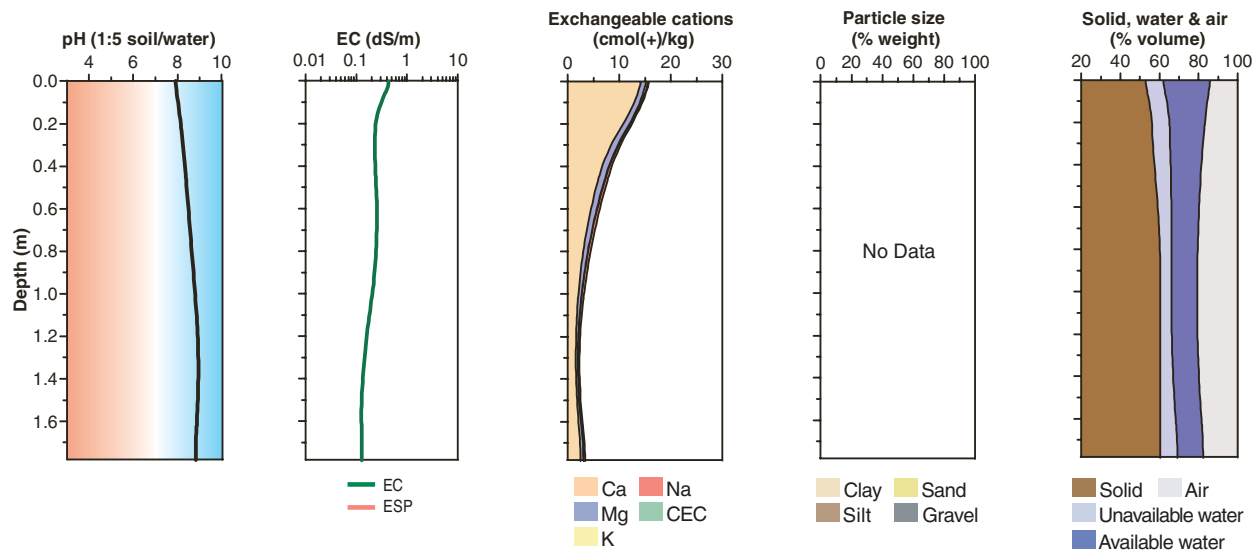
Horizon	Depth (m)	Colour	Mottles	Texture	Structure			Consistence	Coarse fragments	Segregations	Boundary
					Grade	Shape	Size				
Ap	0.00–0.06	dark brown (10YR 3/3)	–	sandy loam	single grain	–	–	loose (moderately moist)	–	moderately to highly calcareous*	abrupt
A1	0.06–0.22	brown (7.5YR 5/3)	–	sandy loam	massive	–	–	very weak (moderately moist)	–	highly calcareous*	gradual
A3	0.22–0.45	light brown (7.5YR 6/3)	–	sandy loam	massive	–	–	very weak (moderately moist)	–	highly to very highly calcareous*	diffuse
B1	0.45–1.02	pink (7.5YR 7/3)	–	loamy sand	massive	–	–	very weak (moderately moist)	–	very highly calcareous*	diffuse
B2	1.02–1.62	pink (7.5YR 7/4)	–	coarse loamy sand	massive	–	–	firm (moderately moist)	–	very highly calcareous*	clear
B3	1.62–1.78	yellow (10YR 7/6)	–	sandy loam	massive	–	–	weak (moderately moist)	–	very highly calcareous*	abrupt
Ckm	1.78+	sandy hard calcarenite	–	–	–	–	–	–	–	–	–

* Fine earth fraction

Soil chemical and physical properties

Horizon	Sample Depth (m)	pH H ₂ O ^A	pH CaCl ₂ ^B	Elect. Cond. dS/m ^A	CaCO ₃ % ^B	Org. C % ^D	Extr. P mg/kg ^A	Tot. P %	Tot. K %	Cation exchange properties ^G						ESP % ^A	Bulk dens. Mg/m ³	Particle size %			
										cmol(+)/kg								CS	FS	Silt	Clay
										Ca	Mg	K	Na	H+Al	CEC						
Ap	0.00–0.06	7.9	7.6	0.45	74	4.6	64			14.3	1.0	0.4	0.2		15.2						
A1	0.06–0.22	8.1	7.7	0.18	72	3.0	18			12.7	1.1	0.2	0.2		12.5						
A3	0.22–0.45	8.3	7.8	0.22	86	1.6	5			6.8	1.5	0.1	0.4		6.2						
B1	0.45–1.02	8.6	7.9	0.27	81	0.8	< 4			3.0	1.0	0.1	0.6		1.8						
B2	1.02–1.62	9.0	8.1	0.13	80	0.2	< 4			1.3	0.3	< 0.1	0.3		0.8						
B3	1.62–1.78	8.8	8.1	0.13	95	0.4	5			2.6	0.6	0.1	0.3		1.6						

Key profile properties



General qualities of the soil

Infiltration:	Rapid.
Available water store:	Small for pasture species.
Permeability:	High.
Physical root limitations:	None.
Erosion hazard:	Low water erosion potential. Moderate to moderately high wind erosion potential. Maintenance of organic matter levels will preserve surface stability.
Nutrient availability:	The soil's ability to retain nutrients is moderate in the surface layers but low in the subsoil layers. Nutrient availability problems (particularly manganese, phosphorus and zinc) are inherent in this soil due to the high calcium carbonate content.
Toxicities:	Unlikely to occur.



Dunefield adjacent to the coastline on the southern tip of the Yorke Peninsula, South Australia

Acknowledgements: Soil image, description and laboratory data: Department of Water, Land and Biodiversity Conservation, South Australia. Site CY019. Landscape image: Department of Water, Land and Biodiversity Conservation, South Australia.