CA8: Epibasic-Epihypersodic, Regolithic, **Hypercalcic Calcarosol**

Near Salmon Gums, south-east Western Australia

General description of the soil

A Hypercalcic Calcarosol (>20 % soft carbonate and <20% hard carbonate) underlain by unconsolidated sedimentary materials. The A1 horizon is non-calcareous and an ESP of 15 or greater occurs within the upper 0.5 m of the profile.

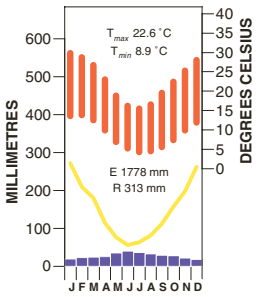
Distribution:	Best known from the Salmon Gums area, north of Esperance, Western Australia.
Typical land use:	Grazing.
Common variants:	There are occurrences of these soils with pedal B horizons.
World Reference Base:	Endosalic Calcisol.
Other names:	Solonised Brown Soils and Mallee Soils.

Environment and location of the example profile

Landform:	Level to gently undulating plain.
Parent material or substrate:	Calcareous, clayey sediments.
Drainage class:	Moderately well-drained, but profile is rarely saturated.
Surface condition:	Strewn with small siliceous stones.
Native vegetation:	Isolated clumps of mallee trees.
Microrelief:	Occasional crabhole gilgai.

Site location

Site climate



Soil morphology

Horizon	Depth (m)	Colour	Mottles	Texture	Structure			Consistence	Coarse fragments	Segregations	Boundary
					Grade	Shape	Size				
A1	0.00–0.10	dark brown (7.5YR 4/3)	–	fine sandy clay loam	weak	granular	2–5 mm		–	–	clear
B21tk	0.10–0.30	reddish brown (5YR 5/4)	–	light clay	moderate	polyhedral	5–10 mm		–	2–10% carbonate (20–60 mm) very highly calcareous*	gradual
B22tk	0.30–1.00	reddish brown (5YR 5/6)	–	light medium clay	massive	–	–		–	highly calcareous*	

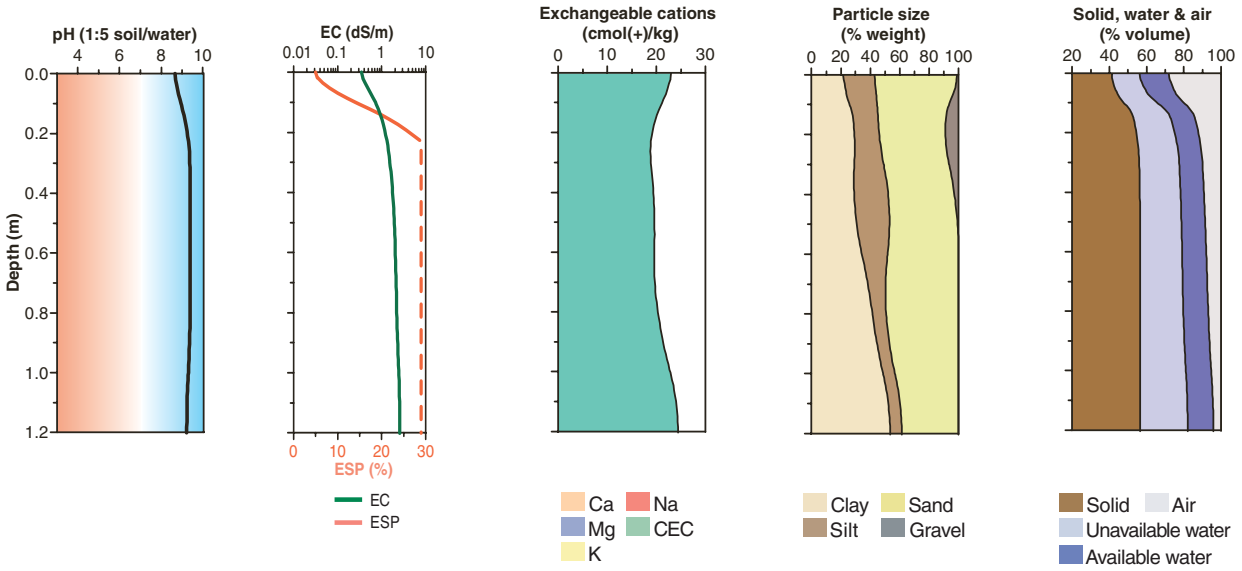
* Fine earth fraction

Soil chemical and physical properties

Horizon	Sample Depth (m)	pH H_2O[A]	pH $CaCl_2$	Elect. Cond. dS/m[A]	$CaCO_3$ %	Org. C %[A]	Extr. P mg/kg[A]	Tot. P %	Tot. K %	Cation exchange properties[E] cmol(+)/kg							ESP %[A]	Bulk dens. Mg/m³	Particle size %[B]			
										Ca	Mg	K	Na	H+Al	CEC	ECEC			CS	FS	Silt	Clay
A1	0.00–0.10	8.7		0.35		1.5	2					1.0	0.7		23		3	1.1	16	40	21	23
B21tk	0.10–0.30	9.5		1.39		0.3	3					1.1	5.7		17		34	1.4	18	31	17	34
B22tk	0.30–0.60	9.4		1.98		0.3	< 2					1.1	7.7		20		39	1.5	14	31	27	28
B22tk	0.60–0.80	9.4		2.12		0.1	< 2					0.9	7.9		19		41		18	33	10	39
B22tk	0.80–1.00	9.4		2.25		0.1	< 2					1.0	9.7		21		47		17	31	8	44
B3	1.00–1.20	9.2		2.66		0.1	< 2					1.4	12.6		25		50		11	27	8	54

Note: The cation method used is unsuitable for determining exchangeable calcium and magnesium in calcareous soils, hence no values are shown for these two elememts.

Key profile properties



General qualities of the soil

Infiltration:	Moderate to slow or very slow if compacted or sealed.
Available water store:	Very small due to soluble salts in the B horizon which apparently restrict root growth.
Permeability:	Moderate to low.
Physical root limitations:	None.
Erosion hazard:	Moderate to high wind erosion hazard.
Nutrient availability:	Good nutrient status although phosphorus is low.
Toxicities:	Possible boron toxicity in the highly calcareous subsoil. Extreme salinity below 0.1 m in the example profile.

Undulating plain near Salmon Gums, Western Australia

Acknowledgements: Soil image: Agriculture Western Australia. Soil description and laboratory data: Kumarl series in Overheu (1993). Landscape image: Richard Woldendorp.