

SO6: Calcic, Mesonatric, Red Sodosol

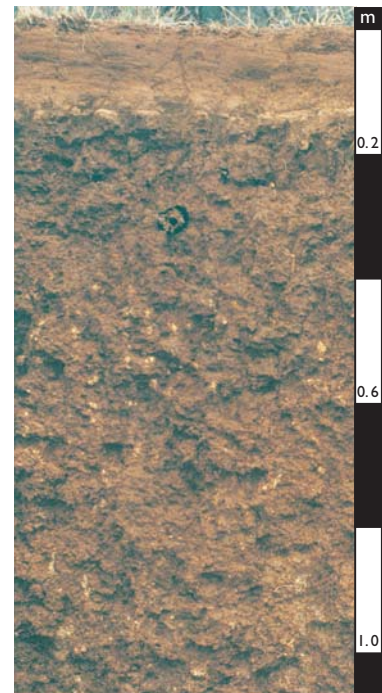
General description of the soil

A texture-contrast soil that is strongly sodic and not strongly acid in the upper 0.2 m of the red clayey B horizon, the lower part of which is calcareous.

Distribution:	A very common and widespread Sodosol likely to occur to varying extent in most of the Sodosol occurrences shown in Figure 6.13.
Typical land use:	Grazing of native pastures with some cropping in better rainfall areas.
World Reference Base:	Alcalic Solonetz.
Other names:	Sodic Red-Brown Earths and Solodic Soils.

Environment and location of the example profile

Landform:	Level to gently undulating plain.
Parent material or substrate:	Fine sandy and clayey alluvium.
Drainage class:	Imperfectly drained.
Surface condition:	Hardsetting.
Site disturbance:	Grazing.
Native vegetation:	Tall open <i>Eucalyptus populnea</i> woodland.

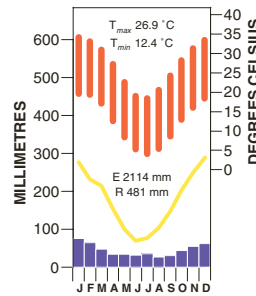


Drab colours are common in sodic soils – east of St George, Queensland

Site location



Site climate



Soil morphology

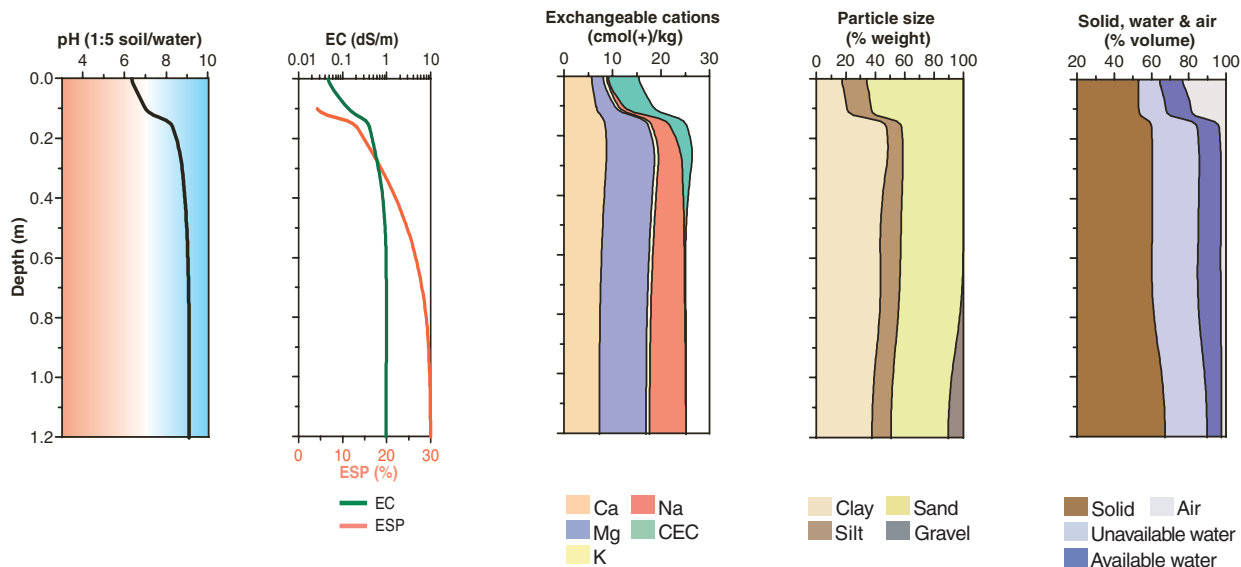
Horizon	Depth (m)	Colour	Mottles	Texture	Structure			Consistence	Coarse fragments	Segregations	Boundary
					Grade	Shape	Size				
A1	0.00–0.12	dark reddish brown (SYR 3/4)	–	fine sandy clay loam	massive	–	–	very weak (dry)	–	–	sharp
A2e	0.12–0.13	light reddish brown (SYR 6/4 d) dark reddish brown (SYR 3/4)	–	fine sandy loam	massive	–	–	moderately firm (dry)	–	–	sharp
B21t	0.13–0.32	dark reddish brown (2.5YR 3/4)	–	heavy clay	weak parting to strong	prismatic parting to angular blocky	20–50 mm parting to 10–20 mm	moderately strong (dry)	–	–	clear
B22tk	0.32–0.96	dark reddish brown (SYR 3/6)	–	heavy clay	moderate	angular blocky	50–100 mm parting to 10–20 mm	moderately strong (dry)	–	10–20% soft carbonate (20–60 mm) <2% carbonate concretions (2–6 mm)	diffuse
B23	0.96–1.50	dark reddish brown (SYR 3/6)	–	medium heavy clay	moderate	polyhedral with cast	10–20 mm with 5–10 mm	very strong (dry)	–	2–10% carbonate concretions (6–20 mm) 20–50% manganiferous veins (6–20 mm)	

Soil chemical and physical properties

Horizon	Sample Depth (m)	pH H ₂ O ^A	pH CaCl ₂	Elect. Cond. dS/m ^A	CaCO ₃ %	Org. C % ^G	Extr. P mg/kg ^{A*}	Tot. P % ^A	Tot. K % ^A	Cation exchange properties ^G cmol(+)/kg						ESP % ^A	Bulk dens. Mg/m ³	Particle size % ^I				
										Ca	Mg	K	Na	H+Al	CEC			ECEC	CS	FS	Silt	Clay
A1	0.00–0.10	6.6		0.03		1.3	20	0.060	0.577	5.4	2.7	0.8	0.2		16		–		9	56	17	20
B21	0.10–0.30	8.8		0.50				0.028	0.639	10.0	10.0	0.8	4.6		28		16		4	37	10	49
B22tk	0.30–0.60	9.0		0.96				0.023	0.633	7.9	10.0	0.8	6.1		25		24		5	38	14	45
B22tk	0.60–0.90	9.1		1.00				0.022	0.618	7.3	9.8	0.8	7.0		24		29		5	38	13	44
B23	0.90–1.20	9.1		0.97				0.019	0.590	7.2	9.7	0.7	7.5		25		30		4	39	14	42

* Bulk sample

Key profile properties



General qualities of the soil

Infiltration:	Moderate to slow.
Available water store:	Moderate.
Permeability:	Low to very low in the sodic B horizon.
Physical root limitations:	Aeration is limiting in the A2 during short-term saturation, and in the heavy B horizon.
Erosion hazard:	Highly dispersive below 0.15 m.
Nutrient availability:	Nitrogen is low, phosphorus is medium to low, and potassium is very high.
Toxicities:	High to very high salinity below 0.30 m.



Tall poplar box
(*Eucalyptus populnea*)
woodland east of St
George, Queensland

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