

## SO9: Eutrophic, Mesonatric, Grey Sodosol

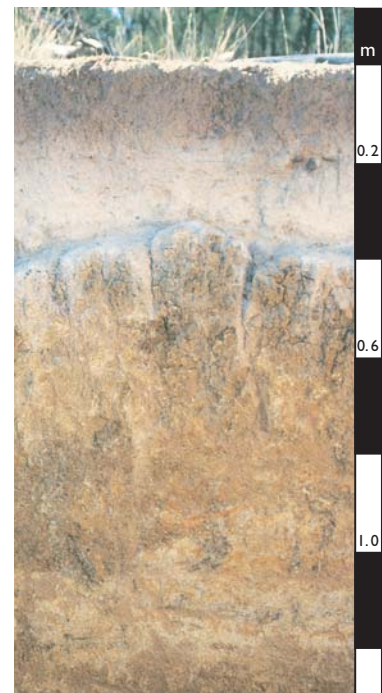
### General description of the soil

A texture-contrast soil which is strongly sodic in the upper 0.2 m of the grey clayey B2 horizon which has a high base status.

<b>Distribution:</b>	A very common and widespread soil throughout most of the Sodosol occurrences shown in Figure 6.13.
<b>Typical land use:</b>	Grazing of native pastures.
<b>Common variants:</b>	Surface is frequently gravelly, B2 horizon may be strongly mottled.
<b>World Reference Base:</b>	Albic Solonetz.
<b>Other names:</b>	Solodised Solonetz or Solodic Soils.

### Environment and location of the example profile

<b>Landform:</b>	Gently undulating plain.
<b>Parent material or substrate:</b>	Sandstone.
<b>Drainage class:</b>	Very poorly drained.
<b>Surface condition:</b>	Hardsetting.
<b>Site disturbance:</b>	Extensive clearing.
<b>Native vegetation:</b>	Open forest (including <i>Allocasuarina luehmannii</i> , <i>Eucalyptus populnea</i> and <i>Cassinia</i> species).

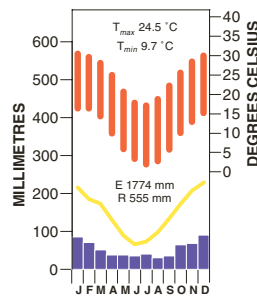


Classic columnar structure in the B horizon, Warwick district, south Queensland

### Site location



### Site climate



### Soil morphology

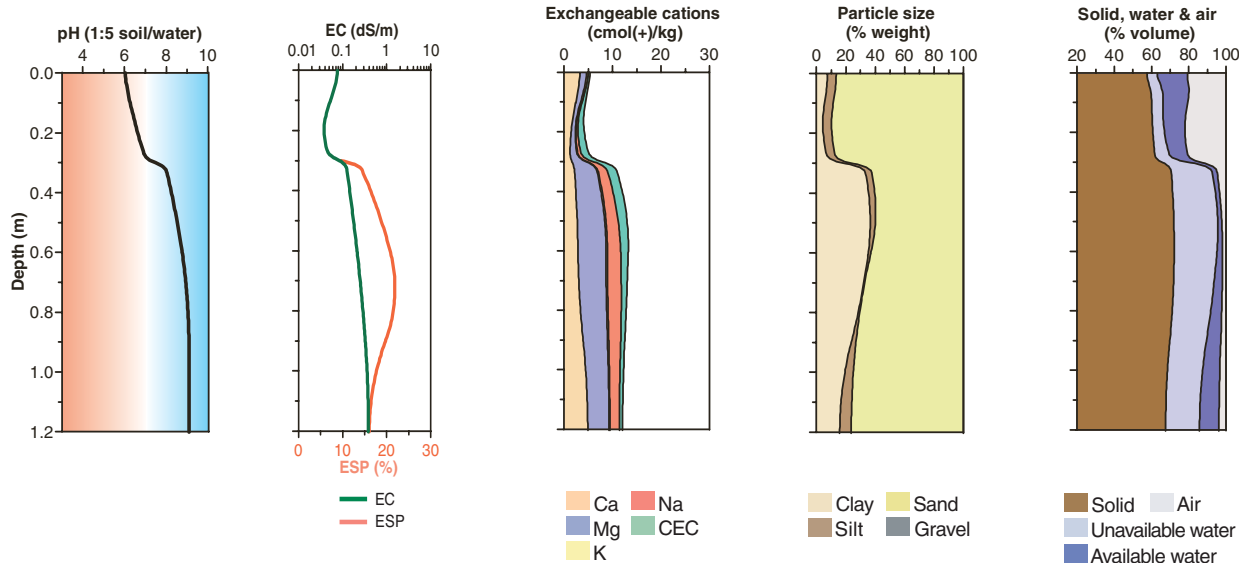
Horizon	Depth (m)	Colour	Mottles	Texture	Structure			Consistence	Coarse fragments	Segregations	Boundary
					Grade	Shape	Size				
A1	0.00–0.15	brown (10YR 4/3)	–	loamy sand	massive	–	–	very weak	–	–	clear
A2e	0.15–0.30	pinkish white (7.5YR 8/2 d)	–	loamy sand	massive	–	–	weak	–	–	abrupt
B2t	0.30–0.80	greyish brown (10YR 5/2)	2–10% distinct orange (<5 mm)	sandy medium clay	strong	columnar	>50 mm	strong	–	–	gradual
B/C	0.80–1.30	yellowish brown (10YR 5/6)	2–10% distinct orange and grey (<5 mm)	coarse sandy light clay				very firm	–	–	

### Soil chemical and physical properties

Horizon	Sample Depth (m)	pH H <sub>2</sub> O <sup>A</sup>	pH CaCl <sub>2</sub>	Elect. Cond. dS/m <sup>A</sup>	CaCO <sub>3</sub> %	Org. C % <sup>A</sup>	Extr. P mg/kg <sup>A</sup>	Tot. P % <sup>A</sup>	Tot. K % <sup>A</sup>	Cation exchange properties <sup>C</sup>						ESP % <sup>A</sup>	Bulk dens. Mg/m <sup>3</sup>	Particle size % <sup>I</sup>			
										Ca	Mg	K	Na	H+Al	CEC			ECEC	CS	FS	Silt
A1	0.00–0.10	6.1		0.07		0.8	14	0.024	0.200	3.6	1.1	0.3	< 0.1		5		–	57	31	6	7
A2e	0.20–0.30	6.5		0.01				0.005	0.148	0.1	0.2	0.1	< 0.1		2		–	55	36	6	3
B2t	0.50–0.60	8.5		0.16				0.009	0.304	3.0	6.0	0.3	2.6		14		19	34	24	4	37
B/C	0.80–0.90	9.1		0.27				0.010	0.290	2.6	6.0	0.3	3.1		13		24	52	16	2	30
B/C	1.10–1.20	9.1		0.39				0.006	0.340	5.3	4.0	0.2	1.9		12		16	47	28	7	17

\* Bulk sample

Key profile properties



General qualities of the soil

<b>Infiltration:</b>	Slow to moderate and less if compacted.
<b>Available water store:</b>	Very small to small depending on thickness of A horizons.
<b>Permeability:</b>	Low to very low.
<b>Physical root limitations:</b>	Water logging in the A2 will restrict aeration. Dense B horizons will have aeration and strength limitations.
<b>Erosion hazard:</b>	Dispersible subsoils will contribute to soil erosion if exposed.
<b>Nutrient availability:</b>	Very low fertility. Nitrogen, phosphorus, potassium and zinc are low. Copper is very low.
<b>Toxicities:</b>	Medium increasing to high salinity below 0.8 m.



Gently undulating plain, originally open forest but now cleared for grazing

Acknowledgements: Soil image, soil description and laboratory data: Department of Natural Resources and Mines, Queensland, Maryland soil, Site 8. Landscape image: Alan Fox.