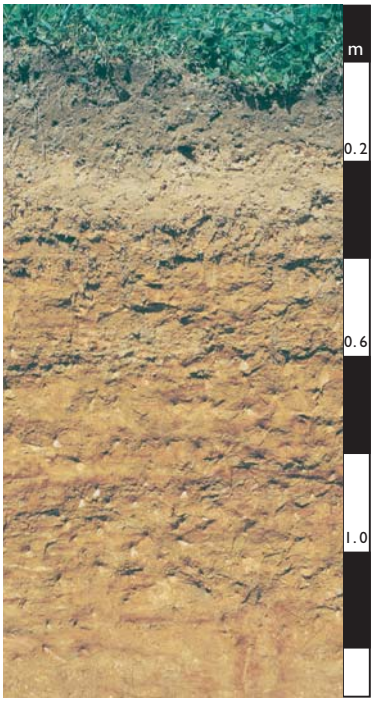
CH7: Bleached-Mottled, Mesotrophic, **Brown Chromosol**



Fleurieu Peninsula, South Australia

General description of the soil

A non-sodic, texture-contrast soil with a brown and red mottled clayey B2 horizon of moderate base status (i.e. Mesotrophic). A conspicuously bleached A2e horizon is present.

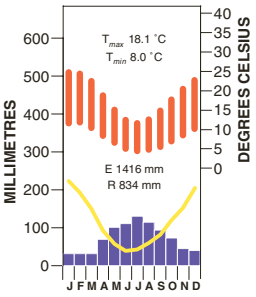
Distribution:	A common soil in south-eastern Australia.
Typical land use:	Grazing, mainly cattle.
Common variants:	A2 horizon may not be bleached (implies better drainage). Base status varies widely and subsoil pH may be neutral to slightly acid. Some profiles are sodic in the lower B horizons and grade to Sodosols.
World Reference Base:	Abruptic Lixisol.
Other names:	Brown Duplex Soils, Brown Podzolic Soils or Lateritic Podzolic Soils.

Environment and location of the example profile

Landform:	Upper slope of low hills.
Parent material or substrate:	Micaceous sandstone.
Drainage class:	Imperfectly drained.
Surface condition:	Firm.
Site disturbance:	Permanent pasture, occasionally cultivated for pasture re-establishment.
Native vegetation:	Eucalypt woodland and open forest.

Site location

Site climate



Soil morphology

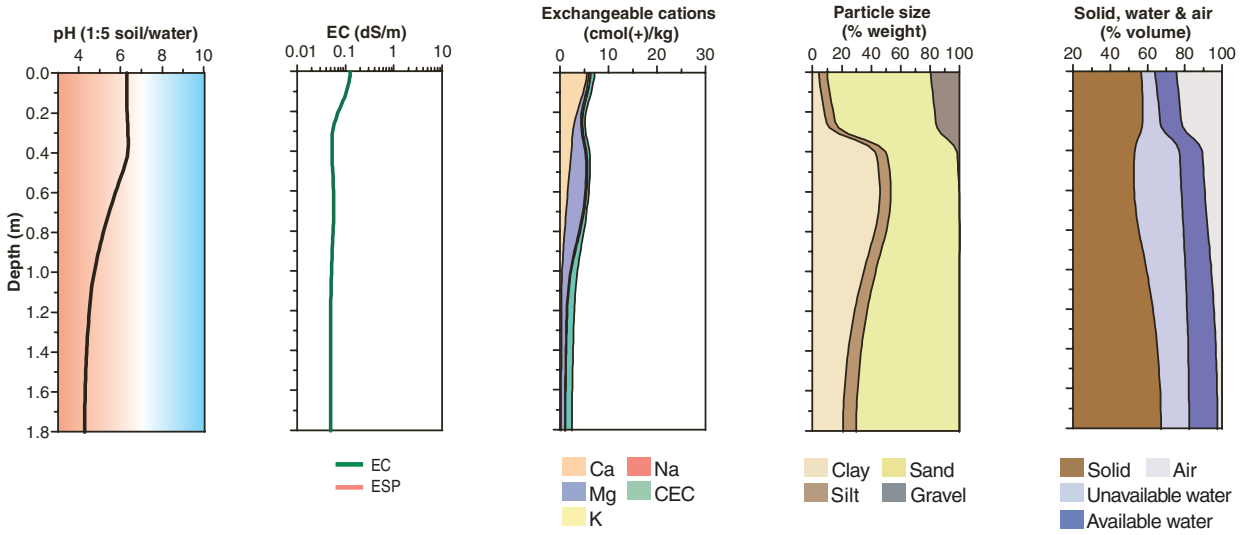
Horizon	Depth (m)	Colour	Mottles	Texture	Structure			Consistence	Coarse fragments	Segregations	Boundary
					Grade	Shape	Size				
A1	0.00–0.15	very dark greyish brown (10YR 3/2)	–	sandy loam	weak	granular	2–5 mm	very weak (moist)	2–10% sandstone (6–20 mm)	2–10% ferruginous nodules (2–6 mm)	clear
A2e	0.15–0.33	pink (7.5YR 8/3 d)	–	sandy loam	massive	–	–	very weak (moist)	2–10% sandstone (6–20 mm)	2–10% ferruginous nodules (2–6 mm)	clear
B21	0.33–0.48	strong brown (7.5YR 5/8)	red (2.5YR 4/8)	sandy light clay	strong	polyhedral	2–5 mm	weak (moist)	<2% quartz (20–60 mm)	–	gradual
B22	0.48–0.85	brownish yellow (10YR 6/8)	dark red (2.5YR 3/6) and light yellowish brown (2.5Y 6/4)	light clay	moderate	polyhedral	2–5 mm	firm (moist)	–	–	diffuse
B3	0.85–1.20	brownish yellow (10YR 6/8)	strong brown (7.5YR 5/8) and red (2.5YR 5/6)	fine sandy clay loam	massive	–	–	firm (moist)	–	–	diffuse
Cr	1.20–1.80	yellow (10YR 8/6)	red (2.5YR 5/8) and brownish yellow (10YR 6/8)	sandy clay loam	massive			firm (moist)	highly weathered kaolinitic sandstone		

Soil chemical and physical properties

Horizon	Sample Depth (m)	pH H_2O[A]	pH $CaCl_2$[B]	Elect. Cond. dS/m[A]	$CaCO_3$ %	Org. C %[D]	Extr. P mg/kg[A]	Tot. P %	Tot. K %	Cation exchange properties[E] cmol(+)/kg							ESP %	Bulk dens. Mg/m^3	Particle size %[A]			
										Ca	Mg	K	Na	H+Al	CEC	ECEC			CS	FS	Silt	Clay
A1	0.00–0.15	6.3	5.7	0.12		2.7	12			5.3	0.4	0.4	< 0.1		7		–		42	42	7	8
A2e	0.15–0.33	6.3	5.7	0.04		0.5	< 2			2.3	0.7	0.2	0.1		4		–					
B21	0.33–0.48	6.6	5.7	0.05		0.3	< 2			2.3	3.5	0.1	0.2		7		–		25	21	7	46

Horizon	Sample Depth (m)	pH H_2O[A]	pH $CaCl_2$[B]	Elect. Cond. dS/m[A]	$CaCO_3$ %	Org. C %[D]	Extr. P mg/kg[A]	Tot. P %	Tot. K %	Cation exchange properties[E] cmol(+)/kg							ESP %	Bulk dens. Mg/m³	Particle size %[A]			
										Ca	Mg	K	Na	H+Al	CEC	ECEC			CS	FS	Silt	Clay
B22	0.48–0.85	5.5	5.4	0.06		0.1	< 2			1.3	4.1	0.1	0.3		6		–					
B3	0.85–1.20	4.6	4.2	0.05		< 0.1	< 2			0.2	1.2	< 0.1	0.2		3		–		41	24	9	26
Cr	1.20–1.80	4.3	4.0	0.05		< 0.1	< 2			0.2	0.8	< 0.1	0.1		3		–					

Key profile properties



General qualities of the soil

Infiltration:	Rapid under pasture and native vegetation.
Available water store:	Moderate.
Permeability:	Moderate to low in the mottled B horizon.
Physical root limitations:	Restricted by dense B3 and Cr horizons. Saturation and poor aeration may occur in the A2 horizon.
Erosion hazard:	Moderately low water and wind erosion potential.
Nutrient availability:	Needs organic matter to maintain moderate fertility, usually low phosphorus content.
Toxicities:	Low pH in deep subsoil – probable aluminium toxicity.

Grazing land in the southern Mount Lofty Ranges, South Australia

Acknowledgements: Soil image, soil description and laboratory data: Department of Water, Land and Biodiversity Conservation, South Australia. Site CH 013. Landscape image: Department of Water, Land and Biodiversity Conservation, South Australia.