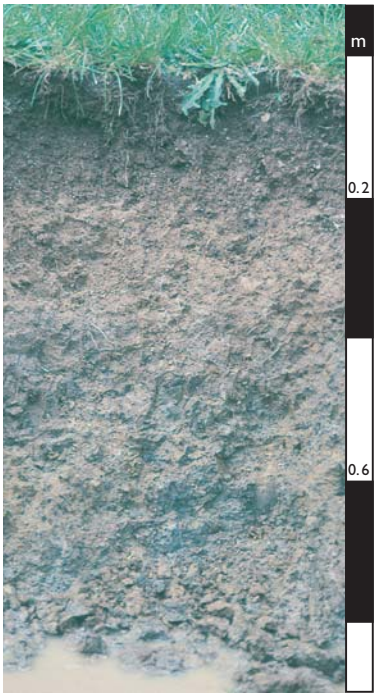
VE1: Epihypersodic, Epipedal, **Aquic Vertosol**



Tallangatta Valley, north-east Victoria

General description of the soil

A shrink-swell, cracking clay soil that is saturated in the upper profile for prolonged periods in most years. The A1 horizon is structured but is not self-mulching, and the soil below 0.2 m is strongly sodic (i.e. ESP >15) and non-calcareous.

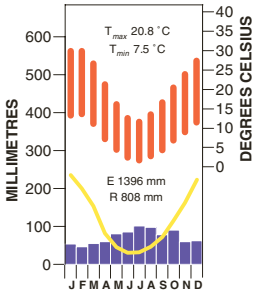
Distribution:	Small areas occur commonly on flood plains in the wetter parts of south-eastern Australia, and probably in similar environments in eastern and northern Australia.
Typical land use:	Grazing of improved pastures.
Common variants:	Some associated soils are dominantly grey or black.
World Reference Base:	Mesotrophic-Sodic Vertisol.
Other names:	Brown or Grey Clays and Cracking Clays.

Environment and location of the example profile

Landform:	Flood plain.
Parent material or substrate:	Clay alluvium.
Drainage class:	Poorly drained, waterlogging occurs in winter.
Surface condition:	Periodic cracking.
Site disturbance:	Cleared.
Native vegetation:	Eucalypt woodland.

Site location

Site climate



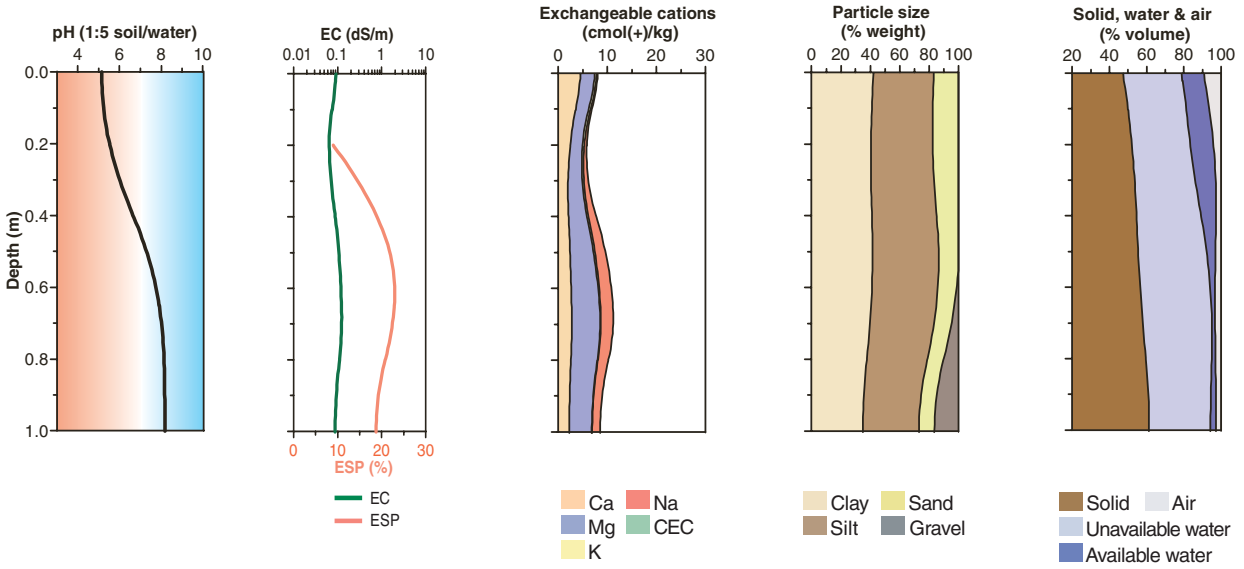
Soil morphology

Horizon	Depth (m)	Colour	Mottles	Texture	Structure			Consistence	Coarse fragments	Segregations	Boundary
					Grade	Shape	Size				
A1	0.00–0.10	very dark brown (10YR 2/2)	–	silty clay	moderate parting to strong	subangular blocky	10–20 mm parting to 5–10 mm	very firm (dry)	–	–	clear
B21	0.10–0.20	dark brown (10YR 3/3)	brown (10YR 5/3)	silty clay	moderate parting to strong	subangular blocky	10–20 mm parting to 5–10 mm	firm (dry)	–	–	abrupt
B22	0.20–0.40	brown (10YR 5/3)		silty clay	moderate	subangular blocky	10–20 mm parting to 5–10 mm	firm (dry)	–	–	abrupt
B31	0.40–0.65	grey (10YR 5/1)	yellow (10YR 7/6)	silty light medium clay	moderate	prismatic parting to subangular blocky (slickensides)	20–50 mm parting to 10–20 mm		–	–	gradual wavy
B32	0.65–0.80	grey (10YR 5/1)	red (2.5YR 5/6)	medium clay					–	–	clear
B33	0.80–1.00	grey (7.5YR 5/1)	reddish yellow (7.5YR 6/8)	coarse sandy medium clay				very sticky (wet)	10% quartz and mica (4 mm)	–	

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 % [A]	Extr. P mg/kg	Tot. P %	Tot. K %	Cation exchange properties [J] cmol(+)/kg							ESP % [C]	Bulk dens. Mg/m^3	Particle size % [C]			
										Ca	Mg	K	Na	H+Al	CEC	ECEC			CS	FS	Silt	Clay
A1	0.00–0.10	5.1	4.5	0.09		5.0				4.5	2.9	0.4	0.2				–		1	14	36	36
B21	0.10–0.20	5.2	4.4	0.05						2.4	2.1	0.4	0.2				–		3	14	40	38
B22	0.20–0.40	5.8	4.6	0.06						1.3	2.3	0.3	0.7				16					
B31	0.40–0.65	7.7	5.8	0.12						2.6 [G]	5.5 [G]	0.3 [G]	2.7 [G]				25		1	12	47	43
B32	0.65–0.80	8.2	6.6	0.14						3.0	6.5	0.1	2.8				23					
B33	0.80–1.00	8.2	6.8	0.08						2.1	4.3	0.1	1.4				18					

Key profile properties



General qualities of the soil

Infiltration:	Slow to very slow in the swollen state.
Available water store:	Small to moderate due to the restricted root zone.
Permeability:	Low.
Physical root limitations:	Root movement down the profile will be restricted by the dense sodic subsoil.
Erosion hazard:	The sodic subsoil is susceptible to dispersion and gullying if exposed.
Nutrient availability:	Organic matter and nitrogen levels are high.
Toxicities:	High levels of aluminium may occur in the strongly acid surface soils.

The Aquic Vertosol occurs on low-lying floodplains of streams and rivers in north-east Victoria.

Acknowledgements: Soil image, soil description and laboratory data: Department of Primary Industries, Victoria. Site NE 20, Tallangatta. Landscape image: Bill Bachman.