

KA6: Haplic, Mesotrophic, Red Kandosol

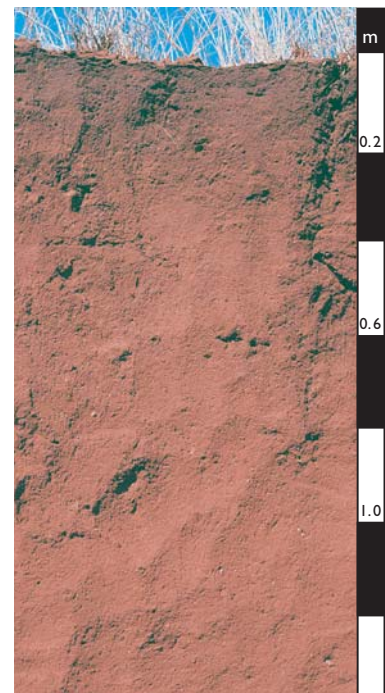
General description of the soil

A deep loamy-surfaced Red Kandosol that is massive virtually throughout the solum. The thick B2 horizon is slightly acid and has a moderately low base status (i.e. Mesotrophic).

Distribution:	A widespread soil common in all states except Victoria and Tasmania. In many instances the soils are relict from past environments and occur independently of contemporary rainfall patterns.
Typical land use:	Sparse grazing of native pastures by beef cattle.
Common variants:	Some soils have a lesser clay increase with depth while others are more sandy in their upper profile. Base status and pH are subject to variation and some forms have variable amounts of ironstone nodules.
World Reference Base:	Profondic Lixisol.
Other names:	Widely known as Red Earths.

Environment and location of the example profile

Landform:	Gently undulating plain.
Parent material or substrate:	Substrate is unconsolidated, strongly mottled, sedimentary material.
Drainage class:	Well-drained.
Surface condition:	Hardsetting.
Site disturbance:	Grazing.
Native vegetation:	Eucalypt woodland.

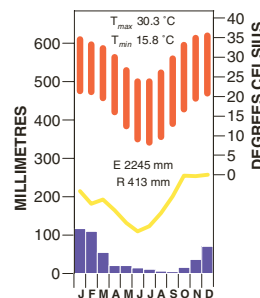


Pentland district, northern central Queensland

Site location



Site climate



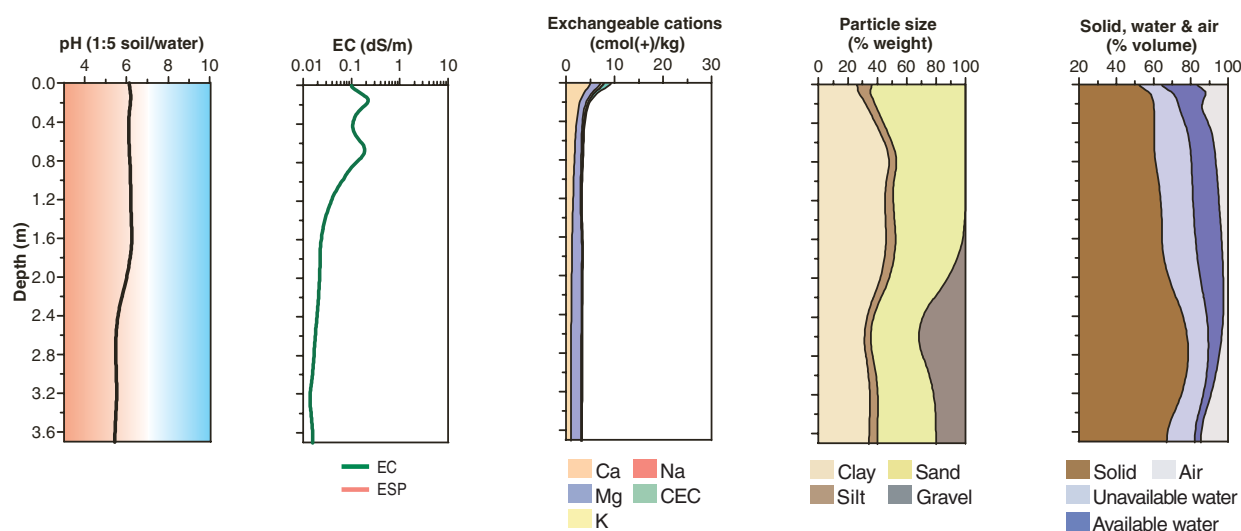
Soil morphology

Horizon	Depth (m)	Colour	Mottles	Texture	Structure			Consistence	Coarse fragments	Segregations	Boundary
					Grade	Shape	Size				
A11	0.00–0.05	dark reddish brown (2.5YR 3/3)	–	sandy clay loam hardsetting	weak	platy	5–10 mm		–	–	clear
A12	0.05–0.10	dark reddish brown (2.5YR 3/4)	–	sandy clay loam	weak	angular blocky	10–20 mm		–	–	gradual
B1	0.10–0.30	dark red (10R 3/6)	–	sandy clay loam	massive	–	–		–	–	gradual
B21	0.30–0.45	dark red (10R 3/6)	–	sandy clay loam	massive	–	–		–	–	gradual
B22	0.45–0.60	dark red (10R 3/6)	–	light clay	massive	–	–		–	–	gradual
B23	0.60–0.75	dark red (10R 3/7)	–	light clay	massive	–	–		–	10–20% clayey nodules (5–20 mm)	gradual
B24	0.75–0.90	dark red (10R 3/7)	–	sandy clay loam	massive	–	–		–	10–20% clayey nodules (5–20 mm)	gradual
B25	0.90–1.80	red (10R 4/6)	–	sandy clay loam	massive	–	–	weak (moist)	–	2–10% clayey nodules (5–20 mm)	gradual
BC1	1.80–2.20	red (10R 4/6)	–	light clay	massive	–	–	weak (moist)	2–10% subangular quartz (6–20 mm)	–	gradual
BC2	2.20–2.50	red (10R 4/6)	–	light clay	massive	–	–	very weak (moist)	20–50% sandstone (20–60 mm)	–	gradual
C	2.50–3.10	red (10R 4/6)	white (5YR 8/1)	clay loam	massive	–	–	strong (dry)	20–50% sandstone	–	

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 % ^C	Extr. P mg/kg ^B	Tot. P % ^A	Tot. K % ^A	Cation exchange properties ^A cmol(+)/kg							ESP %	Bulk dens. Mg/m ³	Particle size %			
										Ca	Mg	K	Na	H+Al ^B	CEC	ECEC			CS	FS	Silt	Clay
A1	0.00–0.05	6.1		0.04		1.8	13	0.036	0.230	5.3	2.3	0.6	0.1					1.4	31	33	10	26
A12	0.05–0.10	6.3		0.03		0.7	5	0.028	0.220	3.7	1.5	0.6	0.1					1.6	37	31	7	25
B1	0.10–0.20	6.3		0.02		0.4	3	0.021	0.220	2.5	1.1	0.3	0.1	0.1		4	–	1.6	33	30	6	31
B1	0.20–0.30	6.2		0.02		0.3				2.3	1.1	0.3	<0.1						32	28	6	34
B21	0.30–0.45	6.0		0.03		0.2				1.9	1.1	0.2	0.1	0.1		4	–		31	23	5	41
B23	0.60–0.75	6.1		0.02		0.1		0.023	0.250	1.7	1.5	0.2	0.1	<0.1		4	–		26	19	5	50
B25	0.90–1.20	6.2		0.02						1.4	1.4	0.2	0.1	<0.1		3	–		25	25	5	45
B25	1.50–1.80	6.4		0.02				0.022	0.230	1.2	2.1	0.1	0.1						22	23	7	48
BC1	1.80–2.20	6.1		0.02						1.0	2.1	0.1	0.1									
BC2	2.20–2.50	5.5		0.02															26	22	6	46
C	2.50–2.80	5.4		0.02																		

Key profile properties



General qualities of the soil

Infiltration:	Moderate to rapid depending on degree of hardsetting and sealing.
Available water store:	Large.
Permeability:	High.
Physical root limitations:	None.
Erosion hazard:	Moderate on slopes.
Nutrient availability:	Low throughout the profile.
Toxicities:	None apparent.



Deeply weathered Red Kandosol, Pentland railway cutting, north-central Queensland

Acknowledgements: Soil image, soil description and laboratory data: CSIRO Land and Water. Profile T96. Landscape image: Bill van Aken, CSIRO.