

KA8: Ferric, Petroferric, Brown Kandosol

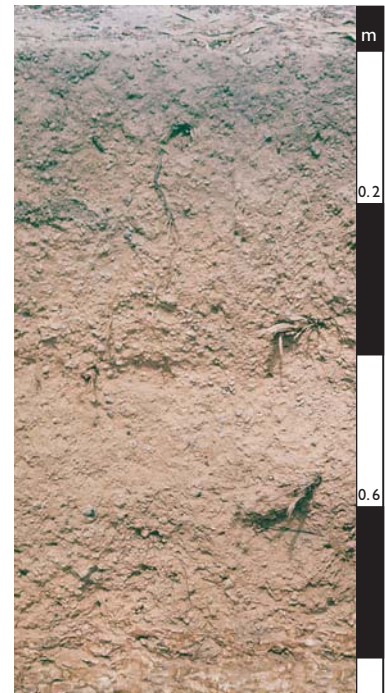
General description of the soil

A relatively shallow, sandy Brown Kandosol underlain by an indurated, mottled ferricrete pan. Ferruginous concretions (>20%) occur throughout the profile.

Distribution:	A widespread Kandosol in far northern Australia.
Typical land use:	Reserved land, extensive grazing, with horticulture and hobby farming locally in the Darwin district.
Common variants:	Depth and texture of the solum may vary.
World Reference Base:	Affinities with Plinthosols and Ferralsols.
Other names:	Some forms have been called Lateritic Podzolic Soils.

Environment and location of the example profile

Landform:	Level to gently undulating plain.
Parent material or substrate:	Parent material has been transported (including ferruginous concretions). Substrate is deeply weathered Lower Proterozoic sandstone.
Drainage class:	Moderately well-drained.
Surface condition:	Soft.
Site disturbance:	Sparse grazing.
Native vegetation:	Tall Woodland with an upper stratum including <i>Eucalyptus tetradonta</i> , <i>Eucalyptus miniata</i> and <i>Erythropheum chlorostachys</i> .

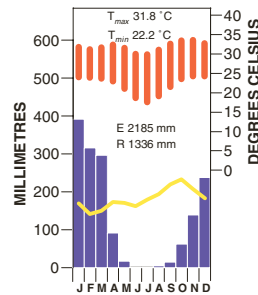


Darwin district, Northern Territory

Site location



Site climate



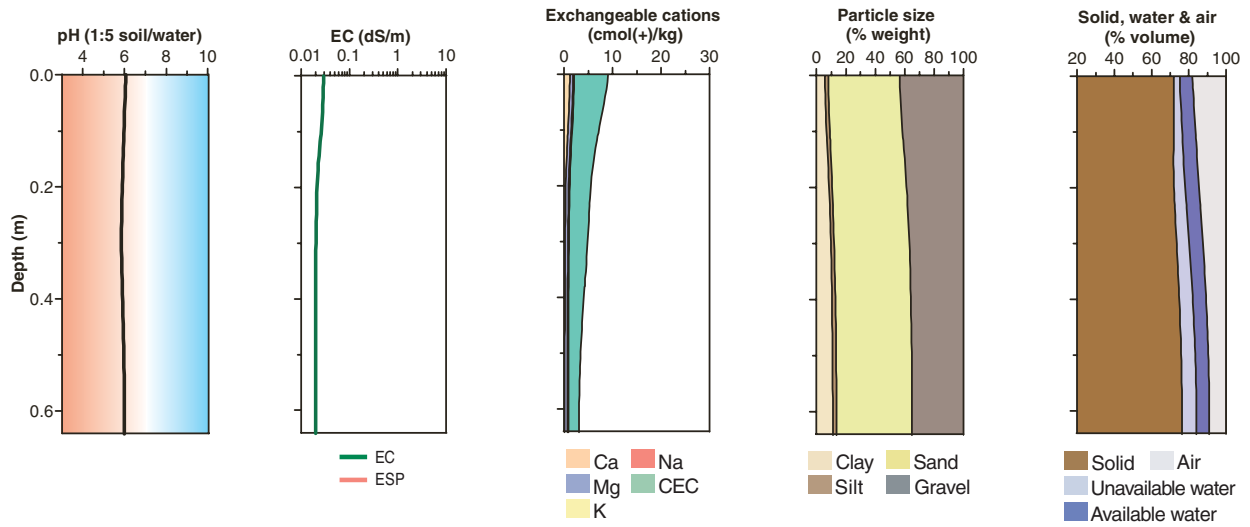
Soil morphology

Horizon	Depth (m)	Colour	Mottles	Texture	Structure			Consistence	Coarse fragments	Segregations	Boundary
					Grade	Shape	Size				
A1	0.00–0.11	very dark greyish brown (2.5Y 3/2)	–	loamy sand	massive	–	–	slightly hard (dry)	–	>20% ferruginous concretions (<10 mm)	diffuse smooth
A2	0.11–0.23	light olive brown (2.5Y 5/3 d) olive brown (2.5Y 4/3)	–	sandy loam	massive	–	–	slightly hard (dry)	–	>20% ferruginous concretions (<10 mm)	diffuse smooth
B1	0.23–0.38	brown (10YR 4/3)	–	light sandy clay loam	massive	–	–	slightly hard (dry)	–	>20% ferruginous concretions (<10 mm)	diffuse smooth
B2	0.38–0.64	strong brown (7.5YR 5/6)	–	light sandy clay loam	massive	–	–	slightly hard (dry)	–	>20% ferruginous concretions (<10 mm)	abrupt wavy
D	0.64–0.74+	dark red (2.5YR 3/6) and reddish yellow (7.5YR 6/6)	strongly mottled	vesicular channels of soil from above horizons or termite material	hard ferricrete	–	–				

Soil chemical and physical properties

Horizon	Sample Depth (m)	pH H ₂ O ^A	pH CaCl ₂ ^E	Elect. Cond. dS/m ^C	CaCO ₃ %	Org. C % ^E	Extr. P mg/kg ^A	Tot. P % ^A	Tot. K % ^A	Cation exchange properties ^D								ESP %	Bulk dens. Mg/m ³	Particle size % ^F					
										cmol(+)/kg										CEC	ECEC	CS	FS	Silt	Clay
										Ca	Mg	K	Na	H+Al	CEC	ECEC									
A1	0.00–0.11	6.0	4.6	0.03		1.5	5	0.01	0.06	1.1	0.7	0.1	0.1		8		–	1.6	32	50	4	10			
A2	0.11–0.23	5.9	4.5	< 0.03		0.8	1	0.01	0.06	0.2	0.6	0.1	0.1		5		–		33	47	3	15			
B1	0.23–0.38	5.8	4.5	< 0.03						0.1	0.6	0.1	0.1		5		–								
B2	0.38–0.64	6.0	4.6	< 0.03				0.01	0.06	0.1	0.6	0.1			3			1.8	31	48	4	17			

Key profile properties



General qualities of the soil

Infiltration:	Rapid but surface prone to degradation if cultivated.
Available water store:	Small above the pan.
Permeability:	Highly permeable above the pan.
Physical root limitations:	Root penetration restricted by ferricrete pan – some short-term saturation.
Erosion hazard:	Moderate on slopes.
Nutrient availability:	Low throughout the profile.
Toxicities:	None apparent.



Deeply weathered landscape, Darwin, Northern Territory

Acknowledgements: Soil image, soil description and laboratory data: CSIRO Land and Water. Stace et al. (1968), page 354, profile C. Landscape image: Alan Fox.