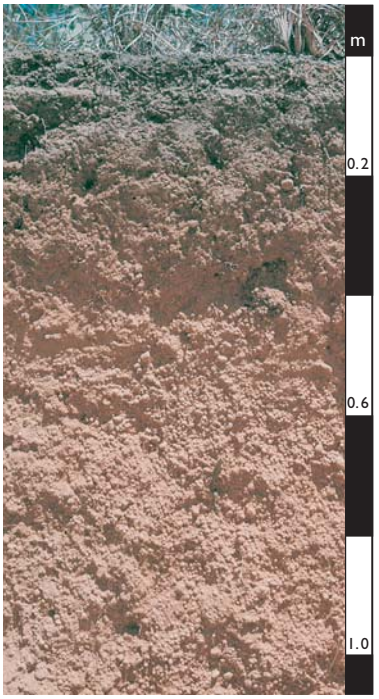
KA4: Bauxitic, Dystrophic, **Red Kandosol**



Weipa, north Queensland

General description of the soil

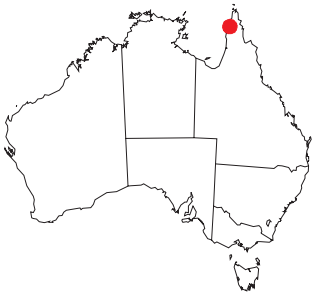
A relatively shallow Red Kandosol dominated by the abundance of bauxitic nodules throughout the profile. The B horizon is slightly acid but has a very low base status (i.e. Dystrophic).

Distribution:	These soils have a well known distribution – the Darling Range in south-west Western Australia and three localities in far northern Australia: the Weipa area; Gove Peninsula; and Mitchell Plateau in the Kimberley region. All sites except the Mitchell Plateau are mined for bauxite.
Typical land use:	Cleared and mined for bauxite.
Common variants:	Some variation in colour and texture may occur.
World Reference Base:	Orthiplinthic Ferrasol.
Other names:	Probably called a bauxitic Red Earth.

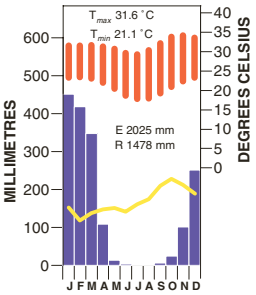
Environment and location of the example profile

Landform:	Very gently undulating plain.
Parent material or substrate:	Altered sedimentary rock.
Drainage class:	Rapidly drained.
Surface condition:	Soft.
Site disturbance:	No effective disturbance.
Native vegetation:	Open forest dominated by *Eucalyptus tetrodonta* and *Corymbia polycarpa*.

Site location



Site climate



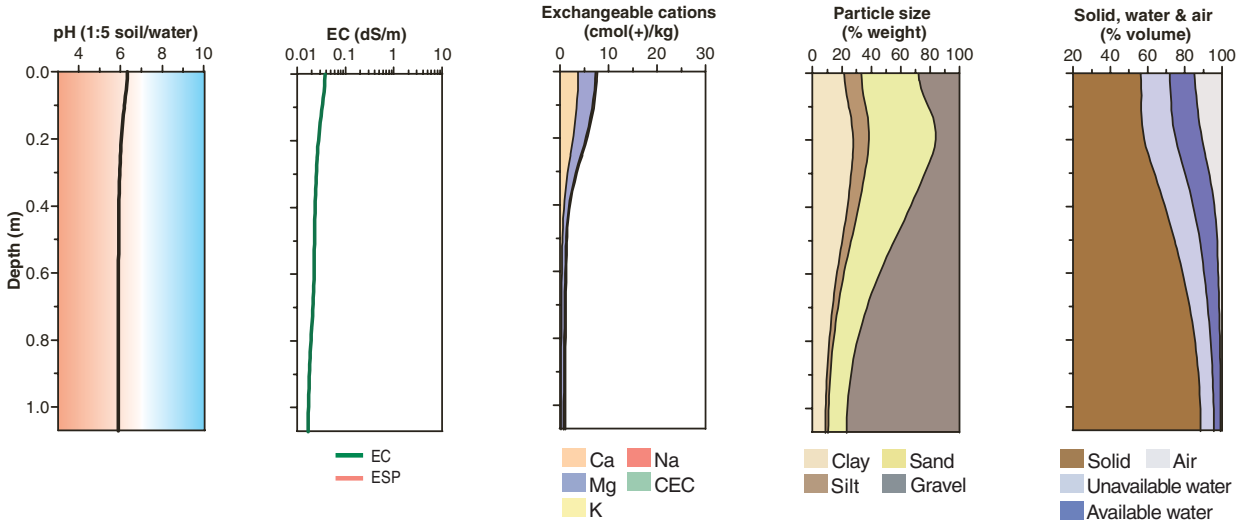
Soil morphology

Horizon	Depth (m)	Colour	Mottles	Texture	Structure			Consistence	Coarse fragments	Segregations	Boundary
					Grade	Shape	Size				
A1	0.00–0.10	very dark greyish brown (10YR 3/2)	–	loam	moderate	granular	2–5 mm	very firm	–	20–50% aluminous concretions (2–6 mm)	clear
A2	0.10–0.25	reddish yellow (7.5YR 6/5 d) strong brown (7.5YR 4/5)	–	sandy clay loam	weak	angular blocky	5–10 mm	very firm	–	2–10% aluminous concretions (2–6 mm)	gradual
B21	0.25–0.51	yellowish red (5YR 4/6)	–	clay loam	massive	–	–	loose	–	20–50% aluminous concretions (2–6 mm)	diffuse
B22	0.51–0.76	yellowish red (5YR 4/6)	–	clay loam	massive	–	–	loose	–	>50% aluminous concretions (2–6 mm)	diffuse
B23	0.76–1.07	yellowish red (5YR 4/6)	–	light clay	massive	–	–	loose	–	>50% aluminous concretions (2–6 mm)	

Soil chemical and physical properties

Horizon	Sample Depth (m)	pH H_2O[A]	pH $CaCl_2$	Elect. Cond. dS/m[A]	$CaCO_3$ %	Org. C %[G]	Extr. P mg/kg	Tot. P %[A]	Tot. K %[A]	Cation exchange properties[A] cmol(+)/kg							ESP %	Bulk dens. Mg/m^3	Particle size %[F]			
										Ca	Mg	K	Na	H+Al	CEC	ECEC			CS	FS	Silt	Clay
A1	0.00–0.10	6.3		0.04		2.7		0.033	0.010	3.5	3.3	0.1	0.3						27	25	15	29
A2	0.10–0.25	6.0		0.03															28	27	13	33
B21	0.25–0.51	5.9		0.02						0.6	0.8	<0.1	0.2						21	31	11	36
B22	0.51–0.76	5.9		0.02				0.021	0.020	0.2	0.6	0.1	0.2						25	28	9	37
B23	0.76–1.07	5.9		0.02																		

Key profile properties



General qualities of the soil

Infiltration:	Rapid.
Available water store:	Small to moderate unless roots can penetrate to depth (>1.50 m) and then a potentially large store is available.
Permeability:	High to very high.
Physical root limitations:	Large amounts of hard concretions, sometimes cemented together.
Erosion hazard:	Low.
Nutrient availability:	Relatively low throughout the profile.
Toxicities:	None apparent.

Heathland and open forests on bauxitic soils along the coast of the Gulf of Carpentaria near Weipa, north Queensland

Acknowledgements: Soil image, soil description and laboratory data: CSIRO Land and Water. Profile T60. Landscape image: Richard Woldendorp.