

KA13: Bleached-Ferric, Mesotrophic, Yellow Kandosol

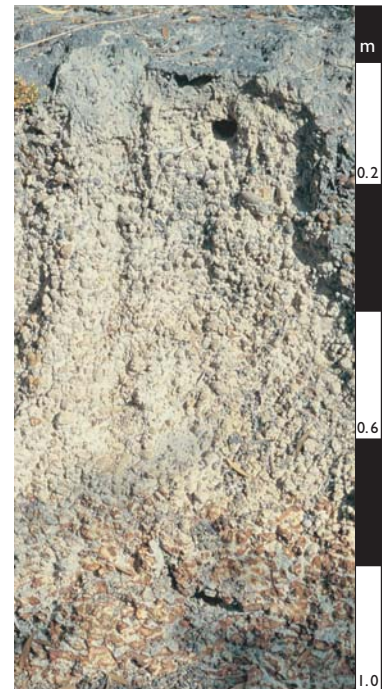
General description of the soil

A yellow Kandosol with many ferruginous nodules and a relatively low base status (i.e. Mesotrophic) in the B2 horizon.

Distribution:	Mainly known from northern Australia in semi-arid environments with siliceous parent materials.
Typical land use:	Extensive grazing.
Common variants:	Texture, gravel content and B horizon colour are variables.
World Reference Base:	Orthiplinthic Lixisol.
Other names:	Similar soils have been called Grey Earths, Yellow Earths and Lateritic Podzolic Soils.

Environment and location of the example profile

Landform:	Undulating plain.
Parent material or substrate:	Sandstone.
Drainage class:	Imperfectly drained.
Surface condition:	Firm.
Site disturbance:	Some disturbance of surface soil.
Native vegetation:	Open eucalypt woodland.

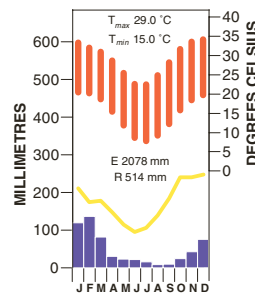


Pentland district, northern central Queensland

Site location



Site climate



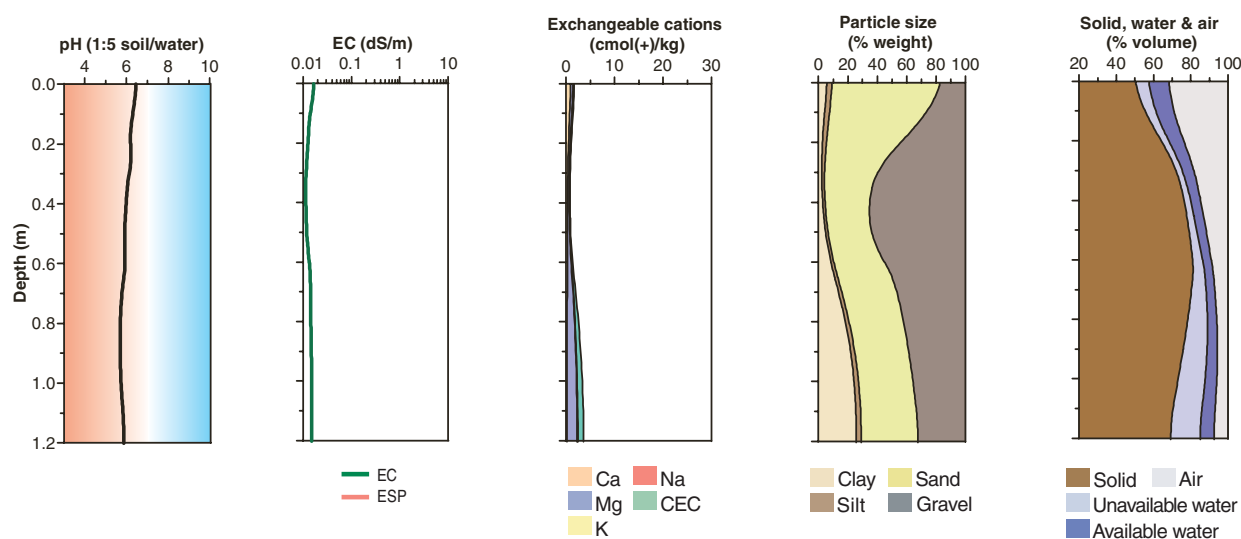
Soil morphology

Horizon	Depth (m)	Colour	Mottles	Texture	Structure			Consistence	Coarse fragments	Segregations	Boundary
					Grade	Shape	Size				
A1	0.00–0.10	dark greyish brown (10YR 4/2)	–	sandy loam	massive	–	–	weak (dry)	–	2–10% ferruginous nodules (2–6 mm)	gradual
A21e	0.10–0.35	pale brown (10YR 6/3)	–	loamy sand	massive	–	–	weak (dry)	2–10% rounded quartz gravel (6–20 mm)	20–50% ferruginous nodules (2–6 mm)	diffuse
A22e	0.35–0.60	pale brown (10YR 6/3)	–	sandy loam	massive	–	–	firm (dry)	2–10% rounded quartz gravel (6–20 mm)	20–50% ferruginous nodules (2–6 mm)	diffuse
A3/B1	0.60–0.65	pale brown (10YR 6/3)	–	sandy clay loam	massive	–	–	firm (dry)	2–10% rounded quartz gravel (6–20 mm)	20–50% ferruginous nodules (2–6 mm)	diffuse
B21	0.65–0.90	light yellowish brown (2.5Y 6/4)	2–10% red (2.5YR 4/6) faint (0–5 mm)	sandy light clay	massive	–	–	strong (dry)	10–20% rounded quartz gravel (60–200 mm)	20–50% ferruginous nodules (2–6 mm)	gradual
B22	0.90–1.08	light yellowish brown (2.5Y 6/4)	2–10% red (2.5YR 4/6) faint (0–5 mm)	sandy medium clay	massive	–	–	strong (dry)	10–20% rounded quartz gravel (60–200 mm)	20–50% ferruginous nodules (2–6 mm)	clear
B/C	1.08–1.20	light grey (10YR 7/1)	10–20% strong brown (7.5YR 5/6) prominent (>30 mm) and red (10R 4/6) prominent (>30 mm)	sandy light clay	massive	–	–	very strong (dry)	10–20% rounded quartz gravel (60–200 mm)	–	

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 ^J cmol(+)/kg						ESP %	Bulk dens. Mg/m ³	Particle size % ^A				
										Ca	Mg	K	Na	H+Al ^B	CEC			ECEC ^A	CS	FS	Silt	Clay
A1	0.00–0.05	6.5		0.02		0.5	4	0.004	0.220	0.9	0.5	0.1	<0.1	0.2	1	2	–		46	44	4	7
A21e	0.20–0.30	6.7		0.01		0.2	9	0.001	0.200	0.3	0.2	<0.1	<0.1	0.3	<1	1	–		41	51	5	3
A22e	0.45–0.60	5.8		0.01						0.2	0.5	<0.1	<0.1	0.1	1	1	–		42	43	5	9
B21	0.65–0.75	5.6		0.02						0.2	1.3	0.1	<0.1	0.4	2	2	–		42	29	4	25
B21	0.75–0.90	5.5		0.01													–		39	20	4	36
B22	0.90–1.08			0.02				0.009	0.040	0.1	2.1	0.1	0.1	0.3	2	3	–		34	20	5	41
B/C	1.08–1.20	6.0		0.02													–		33	24	5	38

Key profile properties



General qualities of the soil

Infiltration:	Rapid but much less when the land surface is degraded or the profile is saturated.
Available water store:	Small.
Permeability:	Moderate.
Physical root limitations:	Unfavourable root environment due to gravel content. Subsoil may be saturated for short periods in wet years.
Erosion hazard:	Slopes likely to be highly erodible.
Nutrient availability:	Low throughout the profile.
Toxicities:	None apparent.



Sequence of Red, Yellow and Grey Kandosols in the ancient landscape west of Charters Towers, northern central Queensland

Acknowledgements: Soil image, soil description and laboratory data: CSIRO Land and Water, Profile T222. Landscape image: Ross Coventry, CSIRO.