

KA12: Mottled, Dystrophic, Yellow Kandosol

General description of the soil

A deep, sandy, mottled Yellow Kandosol with a very low base status (i.e. Dystrophic) in the B2 horizon.

Distribution:	Extensive in far northern Cape York Peninsula; likely to be found elsewhere in the higher rainfall, near coastal zones of eastern and south-western Australia on siliceous parent materials.
Typical land use:	Conservation reserves.
Common variants:	Depth, texture-profile, and degree of mottling may vary.
World Reference Base:	Profondic Acrisol.
Other names:	Probably referred to as Yellow Earths.

Environment and location of the example profile

Landform:	Rolling rises.
Parent material or substrate:	Deeply weathered sandstone.
Drainage class:	Moderately well-drained.
Surface condition:	Firm.
Site disturbance:	None other than fire.
Native vegetation:	Closed heath.

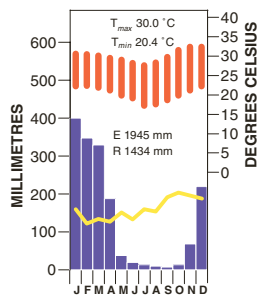


Bamaga Reserve, Cape York Peninsula, north Queensland

Site location



Site climate



Soil morphology

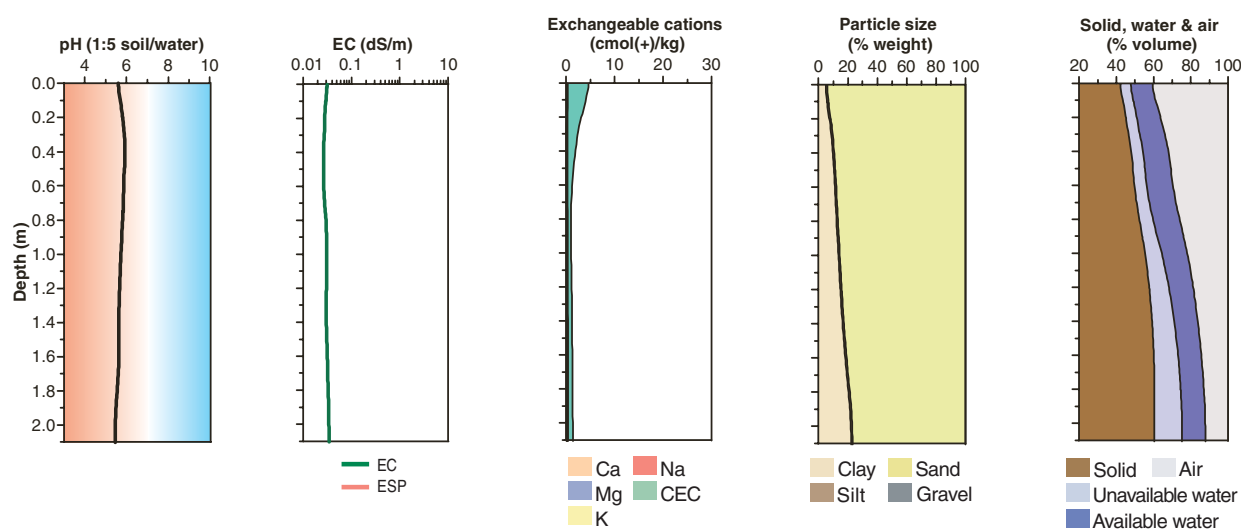
Horizon	Depth (m)	Colour	Mottles	Texture	Structure			Consistence	Coarse fragments	Segregations	Boundary
					Grade	Shape	Size				
A11	0.00–0.10	very dark grey (10YR 3/1)	–	sand	massive	–	–	firm (dry)	–	–	gradual
A12	0.10–0.30	dark greyish brown (10YR 4/2)	–	sand	massive	–	–	firm (dry)	–	–	gradual
A21	0.30–0.60	brownish yellow (10YR 6/6)	–	loamy sand	massive	–	–	weak (moist)	–	–	gradual
A22	0.60–0.90	yellow (10YR 7/6)	–	loamy sand	massive	–	–	weak (moist)	–	–	gradual
B1	0.90–1.20	yellow (10YR 7/6)	reddish yellow (7.5YR 7/8) faint (5–15 mm)	sandy loam	massive	–	–	weak (moist)	–	–	gradual
B21	1.20–2.10	yellow (10YR 7/8)	20–50% reddish yellow (7.5YR 6/8) distinct (15–30 mm)	sandy clay loam	massive	–	–	weak (moist)	–	–	gradual
B22	2.10–2.40	yellow (2.5Y 7/6)	20–50% reddish yellow (5YR 6/8) distinct (15–30 mm)	sandy clay loam	massive	–	–	weak (moist)	–	–	gradual
B23	2.40–2.70	reddish yellow (5YR 6/8)	20–50% yellow (2.5Y 7/6) distinct (15–30 mm)	sandy clay loam	massive	–	–	weak (moist)	–	–	gradual
BC	2.70–3.90	reddish yellow (5YR 6/8)	20–50% white, brown and red (15–30 mm)	sandy medium clay	massive	–	–	weak (moderately moist)	–	–	

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						ESP %	Bulk dens. Mg/m ³	Particle size %			
										cmol(+)/kg								CS	FS	Silt	Clay
										Ca	Mg	K	Na	H+Al ^B	CEC						
A11	0.00–0.10	5.6		0.03		0.9	< 2	0.004	0.010	0.1	0.1	0.1	0.1	3.8	4	–	55	39	1	5	
A11	0.10–0.20	5.8		0.03													49	44	1	6	

Horizon	Sample Depth (m)	pH H ₂ O ^A	pH CaCl ₂	Elect. Cond. dS/m ^A	CaCO ₃ %	Org. C % ^G	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 ^A	CS	FS	Silt
A12	0.20–0.30	5.9		0.03		0.6	< 2	0.004	0.020	<0.1	<0.1	0.1	0.1	2.2	2	–	46	44	1	9	
A21	0.30–0.40	6.0		0.03						<0.1	<0.1	0.1	0.1				44	45	1	10	
A21	0.50–0.60	5.8		0.03		0.1	< 2	0.005	0.020	<0.1	0.1	0.1	0.1	0.8	1	–	43	45	1	11	
A22	0.75–0.90	5.8		0.03						<0.1	0.1	0.1	0.1				50	38	1	12	
B1	0.90–1.20	5.7		0.03			< 2	0.005	0.020	<0.1	0.2	0.1	<0.1	0.8	1	–	46	40	1	14	
B21	1.20–1.50	5.6		0.03						<0.1	0.2	0.1	0.1				47	36	1	17	
B21	1.80–2.10	5.4		0.04			< 2	0.009	0.030	<0.1	0.2	0.1	0.1	1.0	1	–	54	23	<1	23	
B23	2.40–2.70	5.5		0.03													50	22	<1	27	
BC	3.00–3.30	5.4		0.03													53	15	1	31	
BC	3.60–3.90	5.3		0.04													47	17	1	35	

Key profile properties



General qualities of the soil

Infiltration:	Rapid.
Available water store:	Large due to profile depth.
Permeability:	Very high in the upper profile decreasing to moderate at depth.
Physical root limitations:	None, apart from possible aeration limits at depth due to short-term saturation during the wet season.
Erosion hazard:	Low, due to rapid infiltration.
Nutrient availability:	Very low. Multiple deficiencies are likely.
Toxicities:	None apparent.



Rolling low rises with closed heath, far northern Cape York Peninsula, north Queensland.

Acknowledgements: Soil image, soil description and laboratory data: CSIRO Land and Water, Profile T135. Landscape image: CSIRO.