



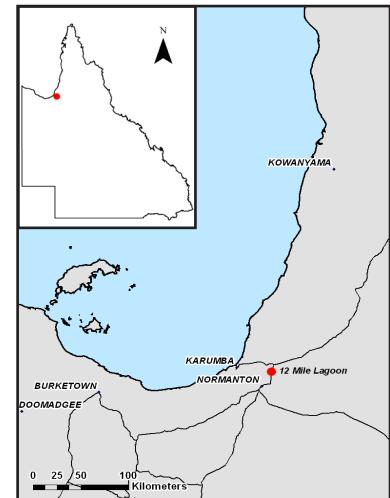
# 12 Mile Lagoon

## Study Area

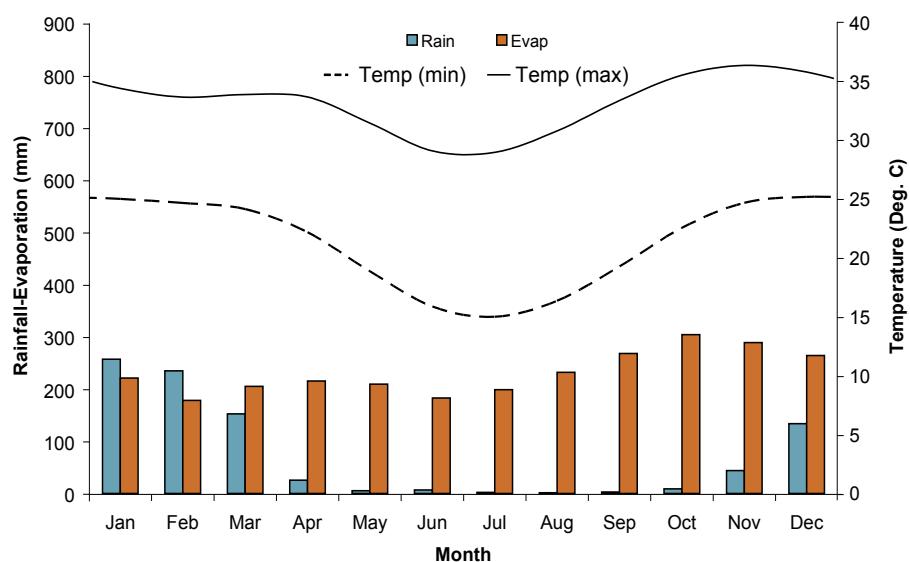
12 Mile lagoon is located approximately 20 km north of Normanton along the Burke Development Road, Northern Queensland.

The lagoon is part of a drainage depression on a level plain which flows into the Norman River. The lagoon appears permanently inundated.

This is a good example of a coastal and sub-coastal floodplain grass, sedge, herb swamp within the Gulf Plains Bioregion.



## Climate<sup>1</sup>

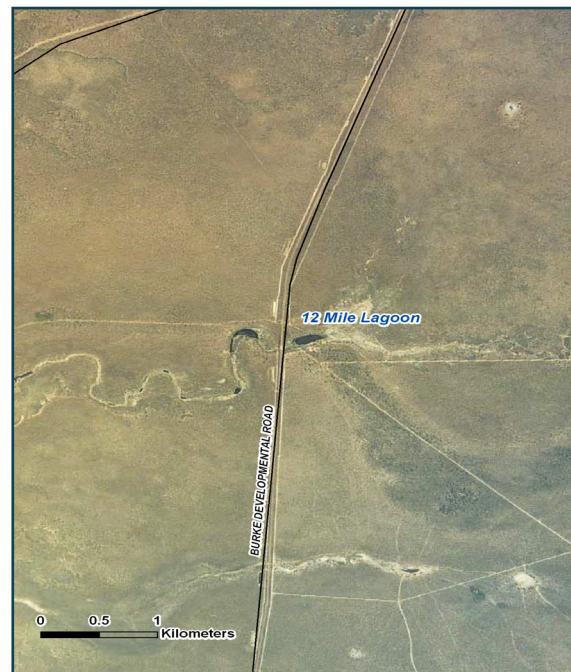


The study area is situated within a tropical/equatorial climatic region with a distinct wet and dry season. Evaporation exceeds rainfall in the majority of months. The average annual rainfall for the areas is 827 mm.

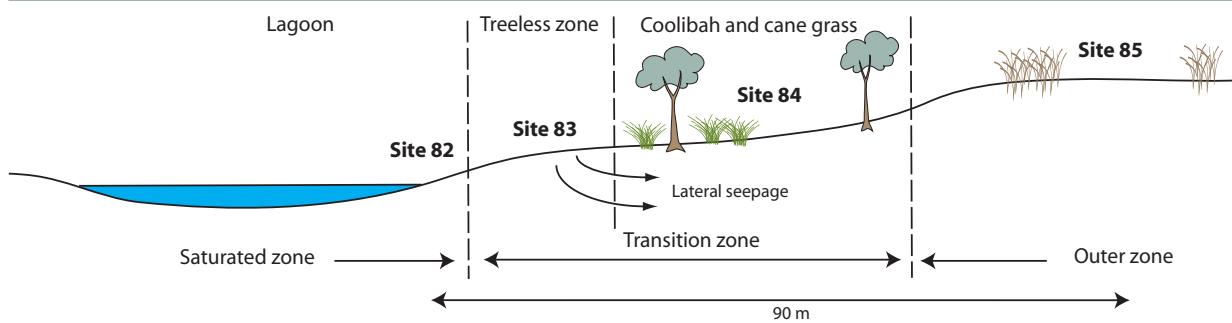
Landform and Inundation	Lagoon on gently undulating plains with sandy rises and relic channels Freshwater inundation from overland flow
Soils <sup>2</sup>	Hydrosols and Sodosols
Vegetation <sup>3</sup>	Coolibah ( <i>Eucalyptus microtheca</i> ), gutta percha ( <i>Excoecaria parvifolia</i> ) low open woodland and blue grass ( <i>Dichanthium spp.</i> ) on grey clay plains (RE 2.3.11)
Geology <sup>4</sup>	Quaternary alluvium Wyaaba beds: clayey quartzose sand, sandstone, granule conglomerate pebbly in places; interbedded sandy claystone
Disturbance	No effective disturbance except grazing by hoofed animals

## Location

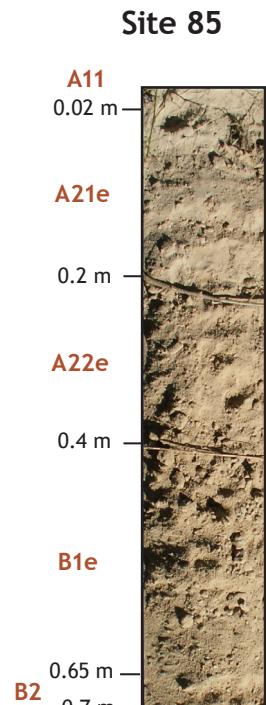
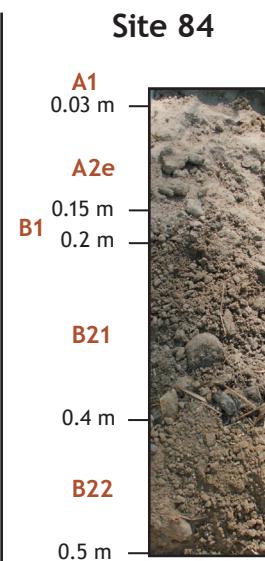
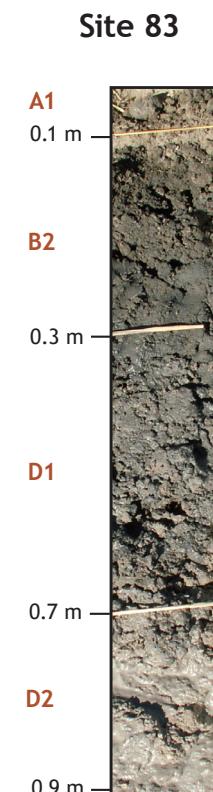
GDA94 • MGA Coordinates : 517101 E, 8061992 N, Zone 54 • Lat/Long : -17.52830 S, 141.16111 E



## Landscape Diagram



## Soil Profiles



## Soil Indicators Present (within 0.3 m of surface)

Indicator <sup>5</sup>	Site 82	Site 83
Organic materials and organic carbon (OC)*	No organic materials OC: 1.38%	No organic materials OC: 0.49%
Matrix colour	Dark grey	Greyish brown to grey
Chroma (thickness of layer)**	Present (0.3 m)	Present (0.3 m)
Mottles and Segregations	Not present	Not present
Depth to groundwater	0.2 m	0.6 m
Ferruginous root channel and pore linings	Not present	Present
pH <sup>6</sup>	Strongly acid	Strongly acid
Texture	Clay loam to silty light medium clay	Loamy coarse sand to sandy light medium clay
Acid sulfate material	Not present	Not present
Electrical Conductivity (EC) <sup>6</sup>	Non saline	Non saline
Indicator <sup>5</sup>	Site 84	Site 85
Organic materials and organic carbon (OC)*	No organic materials OC: 0.23%	No organic materials OC: 0.26%
Matrix colour	Greyish brown to grey	Greyish to yellowish brown
Chroma (thickness of layer)**	Present (0.3 m)	Present (0.2 m)
Mottles and Segregations	Few 2-6 mm ferromanganiferous nodules Few 6-20 mm ferromanganiferous nodules Few <5 mm faint orange mottles Few <5 mm distinct pale mottles Few 2-6 mm earthy root linings	Few 2-6 mm ferromanganiferous nodules
Depth to groundwater	Not present	Not present
Ferruginous root channel and pore linings	Not present	Not present
pH <sup>6</sup>	Moderately acid	Very strongly acid
Texture	Loamy sand to sandy light clay	Sand to loamy sand
Acid sulfate material	Not present	Not present
Electrical Conductivity (EC) <sup>6</sup>	Non saline	Non saline

\*Organic carbon % (Dumas method) and pH taken from surface (0-0.1 m)

\*\*Chroma is less than or equal to 2

### Summary of Field Observations

- Decreasing organic carbon content moving from the saturated zone to the outer zone
- Dark soil surface colours suggest a waterlogged environment in the saturated zone where there is organic accumulation
- Ferruginous root channel linings, mottling and ferromanganiferous nodules indicative of a periodically saturated transition zone
- A1 horizon thickness increases moving into saturated zone suggesting sediment movement from the highest to lowest point in the area
- Poor external drainage predispose area to permanent saturation



## Soil Morphology

Site 82		Classification		Australian Soil Classification		Mesotrophic, Kandosolic, Oxyaquaic Hydrosol			
		Landform Element		Morphological Type		Flat			
Horizon	Depth (m)	Boundary	Texture	Colour	Mottles	Coarse Fragments	Structure	Segregations	Consistence
A1	0 to .1	clear to	clay loam, sandy	dark grey (5Y41)	none	none	massive	none	weak wet
2A1	.1 to .3	gradual to	silty light medium clay	very dark grey (2.5Y30)	none	none	massive	none	weak wet
2B2	.3 to .8	diffuse to	sandy light medium clay	dark grey (2.5Y40)	none	few (2-10%) rounded quartz very strong small pebbles (2-6 mm)	massive	none	very weak wet
3D	.8 to 1	-	clay loam, coarse sandy	dark grey (5Y41)	few (2-10%) medium (5-15 mm) distinct orange mottles	few (2-10%) rounded quartz very strong medium pebbles (6-20 mm)	massive	none	very weak wet

Site 83		Classification		Australian Soil Classification		Mesotrophic, Kurosolic, Oxyaquaic Hydrosol			
		Landform Element		Morphological Type		Midslope			
Horizon	Depth (m)	Boundary	Texture	Colour	Mottles	Coarse Fragments	Structure	Segregations	Consistence
A1	0 to .1	-	loamy coarse sand	dark greyish brown (10YR42)	none	none	massive	none	-
B2	.1 to .3	-	sandy light medium clay	dark grey (10YR41)	none	none	massive	few (2-10%) fine (<2 mm) ferruginous root linings	-
D1	.3 to .7	-	sandy clay loam	grey (10YR51)	none	none	massive	none	-
D2	.7 to .9	-	coarse sand	grey (10YR61)	none	none	massive	none	-

Site 84		Classification			Australian Soil Classification			Hypocalcic, Subnatic, Grey Sodosol		
		Landform Element		Morphological Type		Coarse Fragments		Structure		Segregations
		Horizon	Depth (m)	Boundary	Texture	Colour	Mottles	none	massive	Consistence
A1	0 to .03	-	loamy sand	dark greyish brown (10YR42)	none	none	none	none	none	firm dry
A2e	.03 to .15	-	loamy sand	greyish brown (10YR52), moist, light grey (10YR72), dry	none	none	massive	few (2-10%) medium (2-6 mm) ferromanganiferous nodules, very few (<2%) medium (2-6 mm) ferromanganiferous nodules	few (2-10%) medium (2-6 mm) ferromanganiferous nodules, very few (<2%) medium (2-6 mm) ferromanganiferous nodules	firm dry
B1	.15 to .2	-	sandy light clay	grey (10YR51)	few (2-10%) fine (<5 mm) faint orange mottles, few (2-10%) fine (<5 mm) distinct pale mottles	none	strong 20-50 mm columnar	few (2-10%) coarse (6-20 mm) ferromanganiferous nodules	few (2-10%) coarse (6-20 mm) ferromanganiferous nodules	firm moderately moist
B21	.2 to .4	-	sandy light clay	greyish brown (2.5Y52)	none	none	strong 20-50 mm columnar	few (2-10%) medium (2-6 mm) earthy root linings	few (2-10%) medium (2-6 mm) earthy root linings	very firm dry
B22	.4 to .5	-	sandy light clay	dark grey (2.5Y41)	few (2-10%) fine (<5 mm) distinct yellow mottles	none	moderate 20-50 mm prismatic	few (2-10%) medium (2-6 mm) calcareous nodules	few (2-10%) medium (2-6 mm) calcareous nodules	very firm dry

Site 85		Classification			Australian Soil Classification			Dystrophic, Mottled-Subnatic, Grey Sodosol		
		Landform Element		Morphological Type		Coarse Fragments		Structure		Segregations
		Horizon	Depth (m)	Boundary	Texture	Colour	Mottles	none	massive	Consistence
A11	0 to .02	clear to	sand	greyish brown (10YR52)	none	none	none	none	massive	very weak dry
A21e	.02 to .2	gradual to	sand	pale brown (10YR63)	none	none	none	none	massive	very weak dry
A22e	.2 to .4	gradual to	loamy sand	light yellowish brown (10YR64)	none	none	none	massive	few (2-10%) medium (2-6 mm) ferromanganiferous nodules	very weak dry
B1e	.4 to .65	clear to	sandy clay loam	brownish yellow (10YR65)	few (2-10%) medium (5-15 mm) faint yellow mottles	none	none	few (2-10%) medium (2-6 mm) ferromanganiferous nodules, few (2-10%) coarse (6-20 mm) ferromanganiferous nodules	weak dry	
B2?	.65 to .7	-	sandy light medium clay	very pale brown (10YR73)	many (20-50%) medium (5-15 mm) distinct orange mottles	none	moderate 20-50 mm prismatic	many (20-50%) medium (2-6 mm) ferromanganiferous nodules	strong dry	

## Soil Chemistry

Site	Depth (m)	pH*	EC (dS/m)	Cl (mg/kg)	NO3-N (mg/kg)	TC%**	TN%**
82	0.00-0.10	5.3	0.06	32	5	1.38	0.12
	0.20-0.30	4.9	0.02	<20	<1	0.84	0.08
	0.40-0.50	5.4	0.01	<20	<1	0.4	0.05
	0.00-0.10	5.1	0.03	<20	8	0.49	0.05
83	0.20-0.30	5.3	0.02	<20	1	0.46	0.04
	0.40-0.50	5.5	0.01	<20	<1	0.33	<0.03
	0.00-0.10	5.8	0.03	22	3	0.23	<0.03
	0.20-0.30	8.6	0.19	120	2	0.19	<0.03
84	0.40-0.50	9.5	0.54	234	3	0.62	0.03
	0.00-0.10	4.5	0.01	<20	1	0.26	<0.03
	0.20-0.30	4.4	0.01	<20	<1	0.09	<0.03
	0.40-0.50	4.6	0.01	<20	<1	0.09	<0.03

\*Aqueous 1:5

\*\*Total carbon and total nitrogen

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