



Queensland  
Wetlands Program

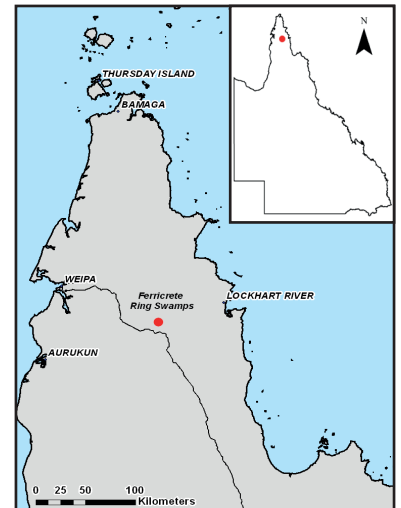
## Ferricrete Swamp

### Study Area

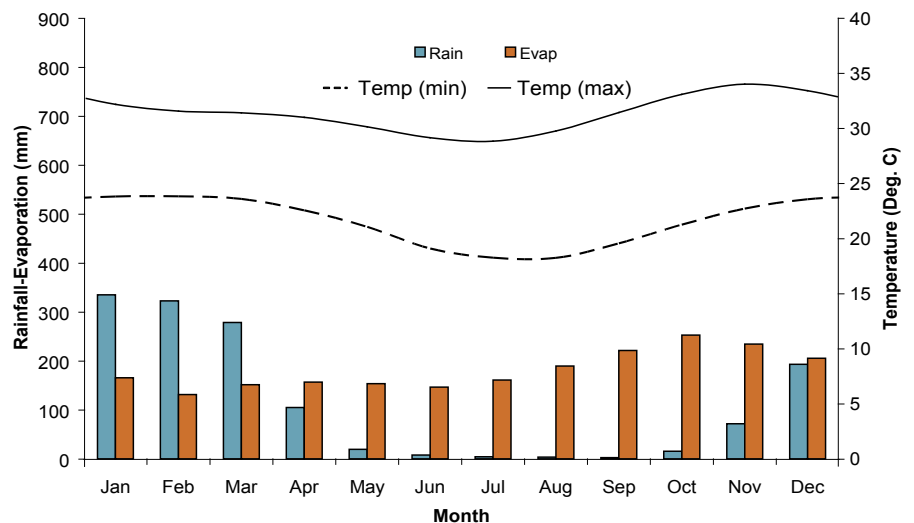
The ferricrete swamps are located approximately 120 km north of Coen along the Bamaga Road, Northern Queensland.

These swamps are small closed depressions which are bounded by a layer of variably cemented ferricrete.

This study area is an example of a coastal and sub-coastal non-floodplain tree swamp (*melaleuca* and *eucalyptus* spp.) in the Cape York Peninsula 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 is 1359 mm.

<b>Landform and Inundation</b>	Closed depression swamps on gently undulating plains Freshwater inundation from overland flow
<b>Soils<sup>2</sup></b>	Hydrosols and Kandosols
<b>Vegetation<sup>3</sup></b>	<i>Melaleuca viridiflora</i> with or without <i>Petalostigma pubescens</i> low open woodland on low plains (RE 3.3.50)
<b>Geology<sup>4</sup></b>	Rolling Downs Group: Shale, siltstone, calcareous in part, minor limestone quartzose and labile glauconitic sandstone
<b>Disturbance</b>	No effective disturbance except grazing by hoofed animals



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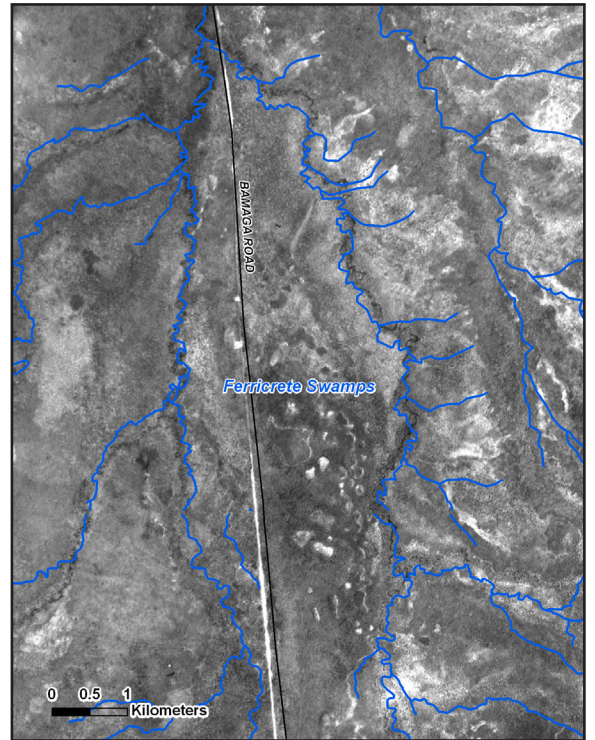


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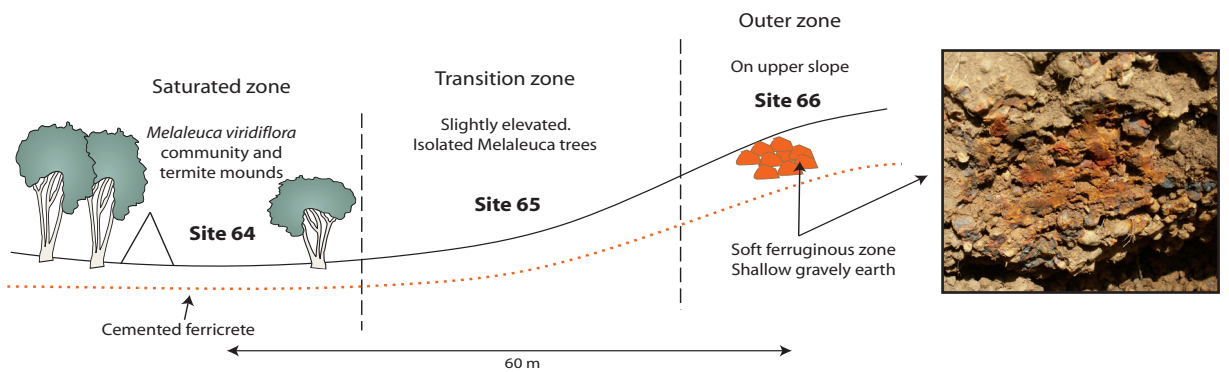
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## Location

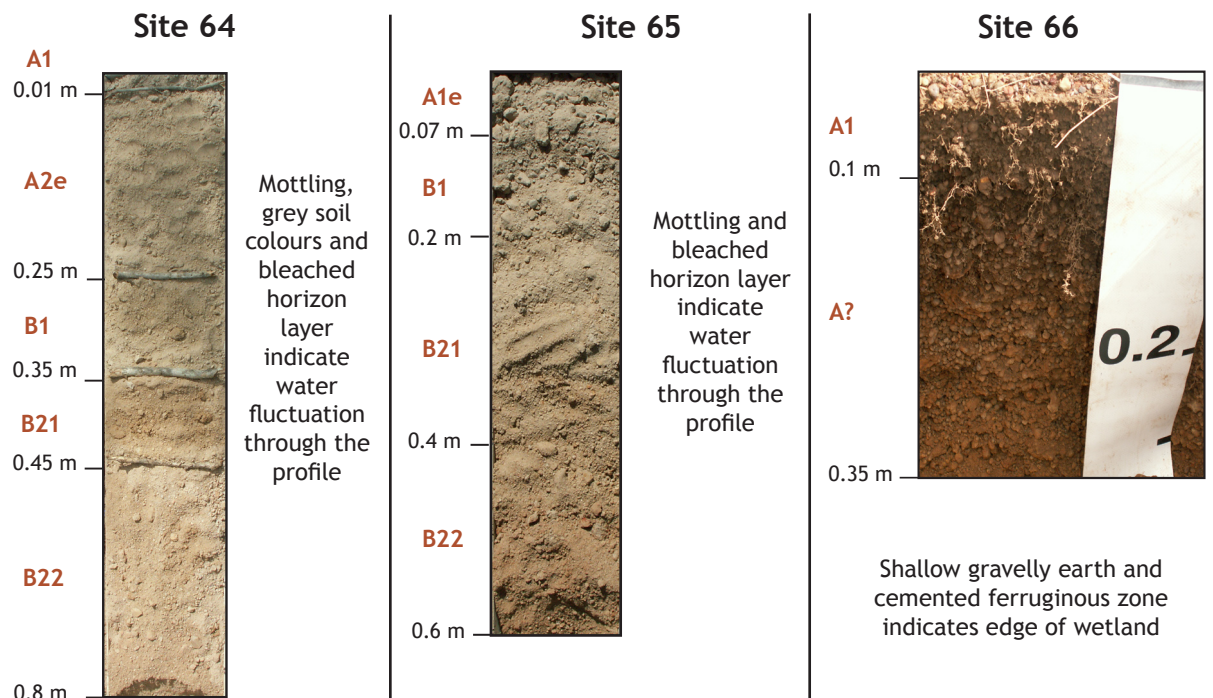
GDA94 • MGA Coordinates : 690207 E, 8564609 N, Zone 54 • Lat/Long : -12.97831 S, 142.75360 S



## Landscape Diagram



## Soil Profiles



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

Indicator <sup>5</sup>	Site 64	Site 65	Site 66
Organic materials and organic carbon (OC)*	No organic materials OC: 0.84%	No organic materials OC: 0.48%	No organic materials -
Matrix colour	Dark grey to brown	Brown	Brown
Chroma (thickness of layer)**	Present (0.01 m)	Present (0.07 m)	Present (0.1 m)
Mottles and Segregations	Few <5 mm faint orange mottles	Few <5 mm faint orange mottles Common <5 mm distinct orange mottles Few <2 mm ferruginous nodules Very few 2-6 mm ferruginous nodules	Very many 2-6 mm ferruginous nodules
Depth to groundwater	Not present	Not present	Not present
Ferruginous root channel and pore linings	Not present	Not present	Not present
pH <sup>6</sup>	Very strongly acid	Very strongly acid	Very strongly acid
Texture	Silty clay loam to silty light medium clay	Silty light clay to silty light medium clay	Loam to clay loam
Acid sulfate material	Not present	Not present	Not present
Electrical Conductivity (EC) <sup>6</sup>	Non saline	Non saline	Non saline

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

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

## Summary of Field Observations

- Faint mottling within 0.3 m of the surface and distinct mottling at depth suggest water fluctuation throughout profiles in saturated and transition zone
- Lack of organic materials and low organic carbon content indicative of seasonally drying out
- Presence of a bleached A horizon indicative of intermittent waterlogging
- Landform and vegetation features such as closed depression, ferricrete pan and *melaleuca* species all suggest seasonal inundation

## References

1. Queensland Department of Natural Resources and Water (2008). SILO [online]. Available at <http://www.longpaddock.qld.gov.au/silo/> [accessed 5/11/2007].
2. Isbell RF (2002). *The Australian Soil Classification*. CSIRO Publishing, Collingwood, Victoria, revised edition.
3. EPA (2008) *Regional Ecosystems*. [online]. Available at [http://www.epa.qld.gov.au/nature\\_conservation/biodiversity/regional\\_ecosystems/](http://www.epa.qld.gov.au/nature_conservation/biodiversity/regional_ecosystems/) [accessed 28/06/08].
4. Bureau of Mineral Resources (1977). *Coen: Australia 1:250,000 Geological Series*, Bureau of Mineral Resources, Canberra.
5. Bryant KB, Wilson PR, Biggs AJW, Brough DM and Burgess JW (2008). *Soil Indicators of Queensland Wetlands: State-wide assessment and methodology*. Queensland Department of Natural Resources and Water. Brisbane.
6. Hazelton P and Murphy B (2007). *Interpreting Soil Test Results: What do all the numbers mean?*. [2nd ed]. CSIRO publishing. Collingwood Victoria



## Soil Chemistry

Site	Depth (m)	pH*	EC (dS/m)	Cl (mg/kg)	NO3-N (mg/kg)	TC%**	TN%**
64	0.00-0.10	4.7	0.02	96	1	0.84	0.04
	0.50-0.60	4.7	0.01	<20	<1	0.13	<0.03
65	0.00-0.10	4.5	0.01	<20	1	0.48	0.05
	0.20-0.30	4.5	0.01	<20	<1	0.3	0.04
	0.40-0.50	4.4	0.01	<20	<1	0.28	0.03
66	0.00-0.10	4.9	0.03	21	4	-	0.62
	0.20-0.30	4.6	0.01	<20	3	-	0.15

\*Aqueous 1:5

\*\*Total carbon and total nitrogen

## Soil Morphology

Site 64	Classification		Australian Soil Classification				Bleached-Ferric, Pteroferric, Oxyaquic Hydrosol		
	Horizon	Depth (m)	Boundary	Texture	Landform Element		Swamp		
					Colour	Mottles	Coarse Fragments	Structure	Segregations
A1	0 to .01	abrupt to	silty clay loam	dark grey (10YR41)	none	none	moderate 5-10 mm platy	none	firm dry
A2e	.01 to .25	clear to	silty clay loam	pale brown (10YR63)	none	none	massive	none	very firm moderately moist
B1	.25 to .35	clear to	silty light medium clay	very pale brown (10YR74)	few (2-10%) fine (<5 mm) faint orange mottles	none	massive	none	firm moderately moist
B21	.35 to .45	gradual to	silty light medium clay	light yellowish brown (10YR64)	common (10-20%) fine (<5 mm) distinct red mottles	none	weak 2-5 mm angular blocky	none	very firm moderately moist
B22	.45 to .8		silty medium clay	light brownish grey (10YR62)	common (10-20%) fine (<5 mm) distinct red mottles	none	moderate 2-5 mm angular blocky	none	very firm moderately moist

Site 65	Classification			Australian Soil Classification					Ferric-Acidic, Peteroferric, Redoxic Hydrosol		
				Landform Element					Swamp		
				Morphological Type					Lower slope		
	Horizon	Depth (m)	Boundary	Texture	Colour	Mottles	Coarse Fragments	Structure	Segregations	Consistence	
A1e	0 to .07	gradual to	silty light clay	dark greyish brown (10YR42)	few (2-10%) fine (<5 mm) faint orange mottles	none	massive	none	-		
B1	.07 to .2	gradual to	silty light clay	pale brown (10YR63)	few (2-10%) fine (<5 mm) distinct orange mottles	none	massive	none	-		
B21	.2 to .4	diffuse to	silty light medium clay	pale brown (10YR63)	common (10-20%) fine (<5 mm) distinct orange mottles	none	moderate 2-5 mm subangular blocky	few (2-10%) fine (<2 mm) ferruginous nodules, very few (<2%) medium (2-6 mm) ferruginous nodules	-		
B22	.4 to .6	-	silty light clay	very pale brown (10YR73)	common (10-20%) fine (<5 mm) prominent red mottles	none	moderate 2-5 mm subangular blocky	many (20-50%) fine (<2 mm) ferruginous nodules	-		

Site 66	Classification			Australian Soil Classification					Ferric-Acidic, Peteroferric Brown Kandosol		
				Landform Element					Swamp		
				Morphological Type					Upper slope		
	Horizon	Depth (m)	Boundary	Texture	Colour	Mottles	Coarse Fragments	Structure	Segregations	Consistence	
A1	0 to .1	clear to	loam	very dark brown (10YR22)	none	none	massive	many (20-50%) medium (2-6 mm) ferruginous nodules	weak dry		
A?	.1 to .35	-	clay loam	dark yellowish brown (10YR46)	none	none	massive	very many (>50%) medium (2-6 mm) ferruginous nodules	-		