

Diamantina Overflow Swamps

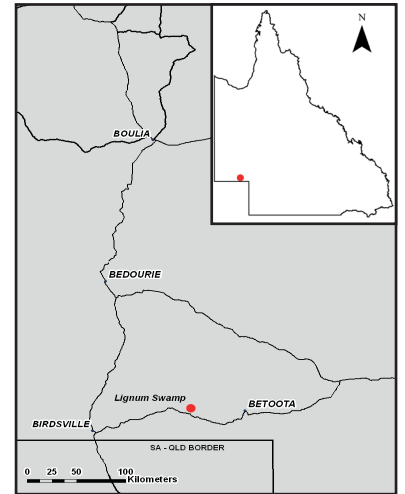


Study Area

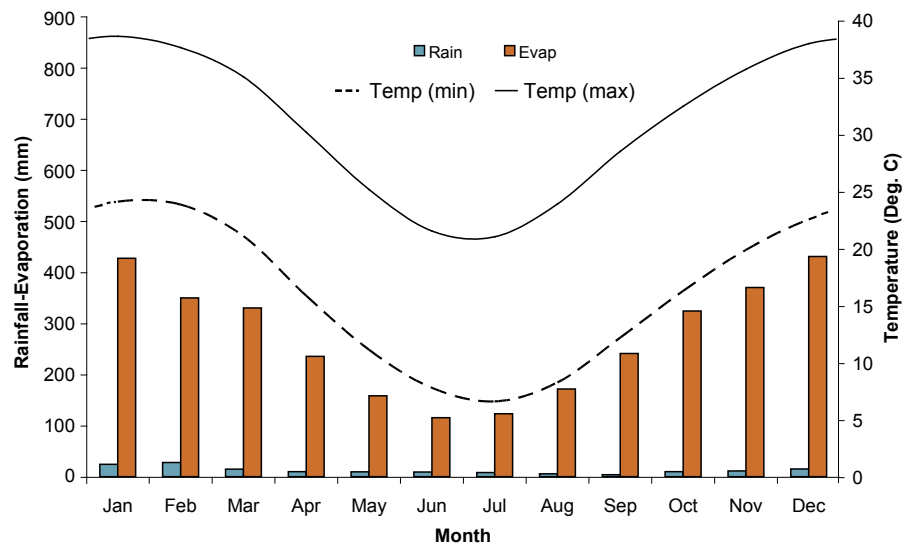
The Diamantina overflow swamps are located approximately 100 km east of Birdsville along the Birdsville Developmental Road South-West Queensland.

This area is comprised of swamps and anastomosing stream channels on an active floodplain.

This study area is an example of an arid floodplain swamp in the Channel Country Bioregion.



Climate¹



The study area is situated within an arid climatic region with no distinct wet or dry season. Evaporation exceeds rainfall in every month. The average annual rainfall for the area is 150 mm.

Landform and Inundation	Swamp on floodplain consisting of numerous braided streams that are seasonally flooded Periodically inundated freshwater swamp from overland flow
Soils²	Hydrosols and Vertosols
Vegetation³	<i>Muehlenbeckia florulenta</i> open shrubland on swamps (RE 5.3.13)
Geology⁴	Clay silt and gravel
Disturbance	No effective disturbance except grazing by hoofed animals



Australian Government



Queensland Government

Queensland Wetlands Program

Soil Indicators Present (within 0.3 m of surface)

Indicator ⁵	Site 181	Site 182
Organic materials and organic carbon (OC)*	No organic materials OC: 0.48%	No organic materials OC: 0.37%
Matrix colour	Greyish brown	Brownish grey
Chroma (thickness of layer)**	Present (0.3 m)	Present (0.3 m)
Mottles and Segregations	Common <5 mm faint brown mottles Common <5 mm distinct brown mottles Few 2-6 mm manganiferous soft segregations	Common 5-15 mm faint orange mottles Few <5 mm faint orange mottles Common 5-15 mm distinct orange mottles Common 2-6 mm manganiferous laminae Few <2 mm manganiferous laminae
Depth to groundwater	Not present	Not present
Ferruginous root channel and pore linings	Not present	Present
pH ⁶	Slightly acid	Slightly acid
Texture	Medium clay to medium heavy clay	Light clay, fine sandy
Acid sulfate material	Not present	Not present
Electrical Conductivity (EC) ⁶	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 and distinct mottling to depth suggests water fluctuation throughout both soil profiles
- Manganiferous soft segregations and ferruginous root channel linings indicative of periodic inundation
- *Muehlenbeckia florulenta* species indicative of an area which is periodically inundated
- Leached soil profiles at both sites with salt accumulating at depth

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/ [accessed 28/06/08].
4. Bureau of Mineral Resources (1966). *Betoota: 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 Morphology

Site 181	Classification			Australian Soil Classification				Episodic-Epicalcareous, Crusty, Grey Vertosol		
	Landform Element			Morphological Type				Swamp		
	Horizon	Depth (m)	Boundary	Texture	Colour	Mottles	Coarse Fragments	Structure	Segregations	Consistence
A1	0 to .02	clear to	medium heavy clay	greyish brown (10YR52)	common (10-20%) fine (<5 mm) faint brown mottles	none	-	none	very strong dry	
A3j	.02 to .15	gradual to	medium heavy clay	greyish brown (10YR52)	common (10-20%) fine (<5 mm) distinct brown mottles	none	moderate 20-50 mm angular blocky	few (2-10%) medium (2-6 mm) manganiferous soft segregations	strong dry	
B21	.15 to .3	gradual to	medium clay	greyish brown (2.5Y52)	common (10-20%) fine (<5 mm) distinct brown mottles	none	moderate 10-20 mm angular blocky	very few (<2%) medium (2-6 mm) manganiferous soft segregations	strong dry	
B22	.3 to .6	diffuse to	medium clay	light brownish grey (2.5Y62)	common (10-20%) medium (5-15 mm) distinct brown mottles	none	moderate 10-20 mm angular blocky	very few (<2%) medium (2-6 mm) manganiferous soft segregations, very few (<2%) medium (2-6 mm) calcareous soft segregations	very firm moderately moist	
B23	.6 to .95	diffuse to	light medium clay	light brownish grey (2.5Y62)	few (2-10%) fine (<5 mm) faint brown mottles	none	moderate 5-10 mm lenticular	very few (<2%) medium (2-6 mm) manganiferous soft segregations	very firm moderately moist	
B24	.95 to 1.2		fine sandy light clay	light yellowish brown (2.5Y64)	many (20-50%) medium (5-15 mm) faint grey mottles, few (2-10%) fine (<5 mm) distinct yellow mottles	none	moderate 2-5 mm lenticular	very few (<2%) medium (2-6 mm) manganiferous soft segregations, few (2-10%) fine (<2 mm) gypseous crystals, very few (<2%) fine (<2 mm) calcareous soft segregations	firm moist	

Site 182		Classification			Australian Soil Classification				Eutrophic, Dermosolic, Redoxic Hydrosol	
		Landform Element			Swamp					
		Morphological Type			Lower slope					
Horizon	Depth (m)	Boundary	Texture	Colour	Mottles	Coarse Fragments	Structure	Segregations	Consistence	
A1	0 to .15	-	light clay fine sandy	greyish brown (10YR5/2)	common (10-20%) medium (5-15 mm) faint orange mottles	none	strong 50-100 mm angular blocky	few (2-10%) fine (<2 mm) ferruginous root linings	-	
B21	.15 to .25	-	light clay fine sandy	light brownish grey (2.5Y6/2)	few (2-10%) fine (<5 mm) faint orange mottles	none	strong 20-50 mm angular blocky, moderate 5-10 mm angular blocky	none	-	
B22	.25 to .5	-	light clay fine sandy	light brownish grey (2.5Y6/2)	common (10-20%) medium (5-15 mm) distinct orange mottles	none	moderate 5-10 mm angular blocky	common (10-20%) medium (2-6 mm) manganese laminae, few (2-10%) fine (<2 mm) manganese laminae	-	
B23	.5 to .7	-	light clay fine sandy	light brownish grey (2.5Y6/3)	few (2-10%) medium (5-15 mm) faint dark mottles	none	massive	none	-	
1D	.7 to 1	-	heavy fine sandy clay loam	pale yellow (2.5Y7/3)	few (2-10%) medium (5-15 mm) faint dark mottles	none	massive	none	-	
2D	1 to 1.2	-	clayey fine sand	pale yellow (2.5Y7/4)	none	none	massive	very few (<2%) fine (<2 mm) ferruginous root linings	-	

Soil Chemistry

Site	Depth (m)	pH*	EC (dS/m)	Cl (mg/kg)	NO3-N (mg/kg)	TC (%)**	TN (%)**
181	0.00-0.10	6.5	0.29	327	4	0.48	0.06
	0.20-0.30	8.3	1.08	1290	<1	0.08	<0.03
	0.40-0.50	8.1	1.68	2120	<1	0.06	<0.03
182	0.00-0.10	6.5	0.22	204	10	0.37	0.04
	0.20-0.30	8.1	0.61	564	3	-	-
	0.40-0.50	8.5	1.52	1470	<1	-	-

*Aqueous 1:5

**Total carbon and total nitrogen

