

Wyandra Claypan

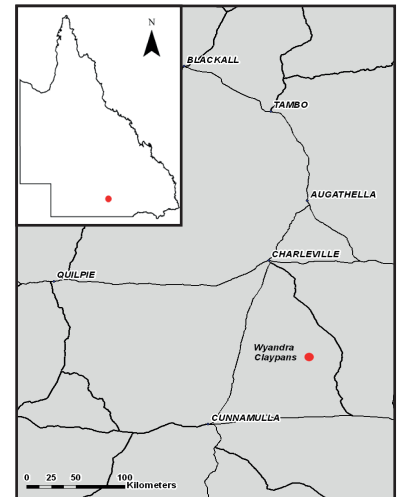


Study Area

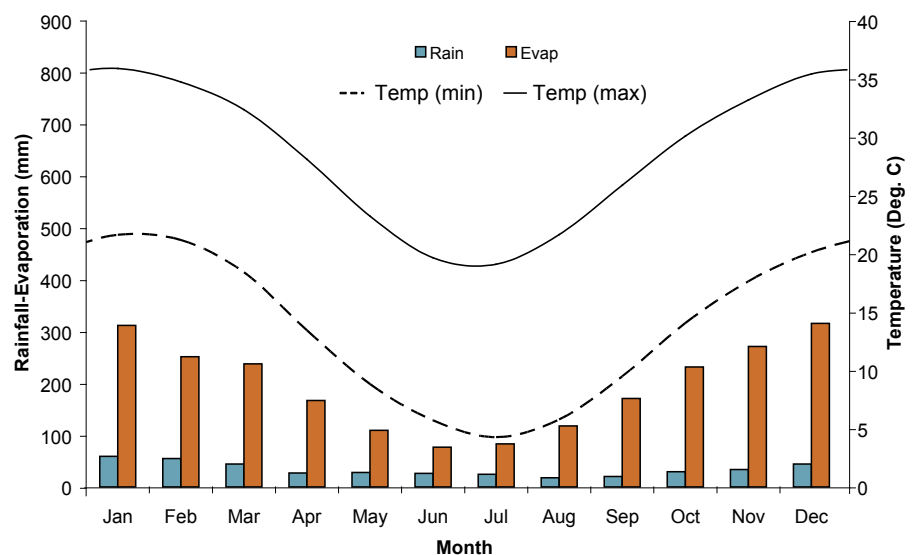
This transect was located approximately 80 km east of Wyandra, South-West Queensland.

The area consists of an aggregation of ephemeral clay pans and lakes across mulga and poplar box plains¹.

This study area is an example of a semi-arid floodplain swamp in the Mulga Lands Bioregion.



Climate²



The study area is situated within a semi-arid climatic region with no distinct wet and dry season. Evaporation exceeds rainfall in every month. The average annual rainfall for the area is 408 mm.

Landform and Inundation	Closed depression swamp on gently undulating plains Freshwater intermittent inundation from overland flow
Soils³	Hydrosols and Sodosols
Vegetation⁴	<i>Eleocharis pallens</i> with or without short grasses with or without <i>Eragrostis australasica</i> open herbland on clays, associated with ephemeral lakes, billabongs and permanent waterholes (RE 6.3.11)
Geology⁵	Quaternary alluvium
Disturbance	No effective disturbance except grazing by hoofed animals



Australian Government



Queensland Government

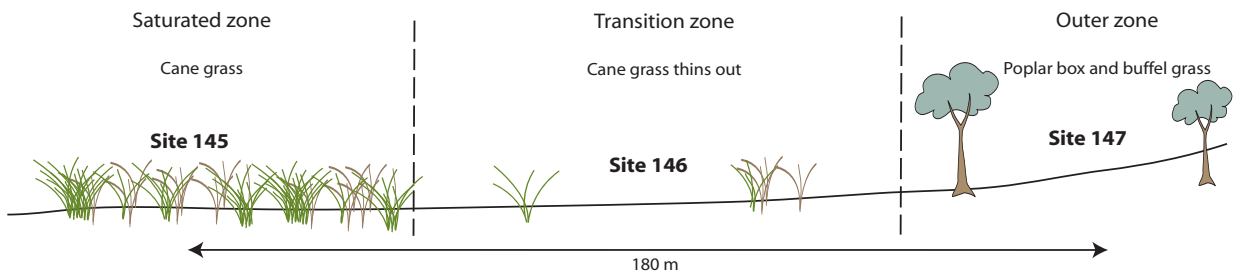
Queensland
Wetlands Program

Location

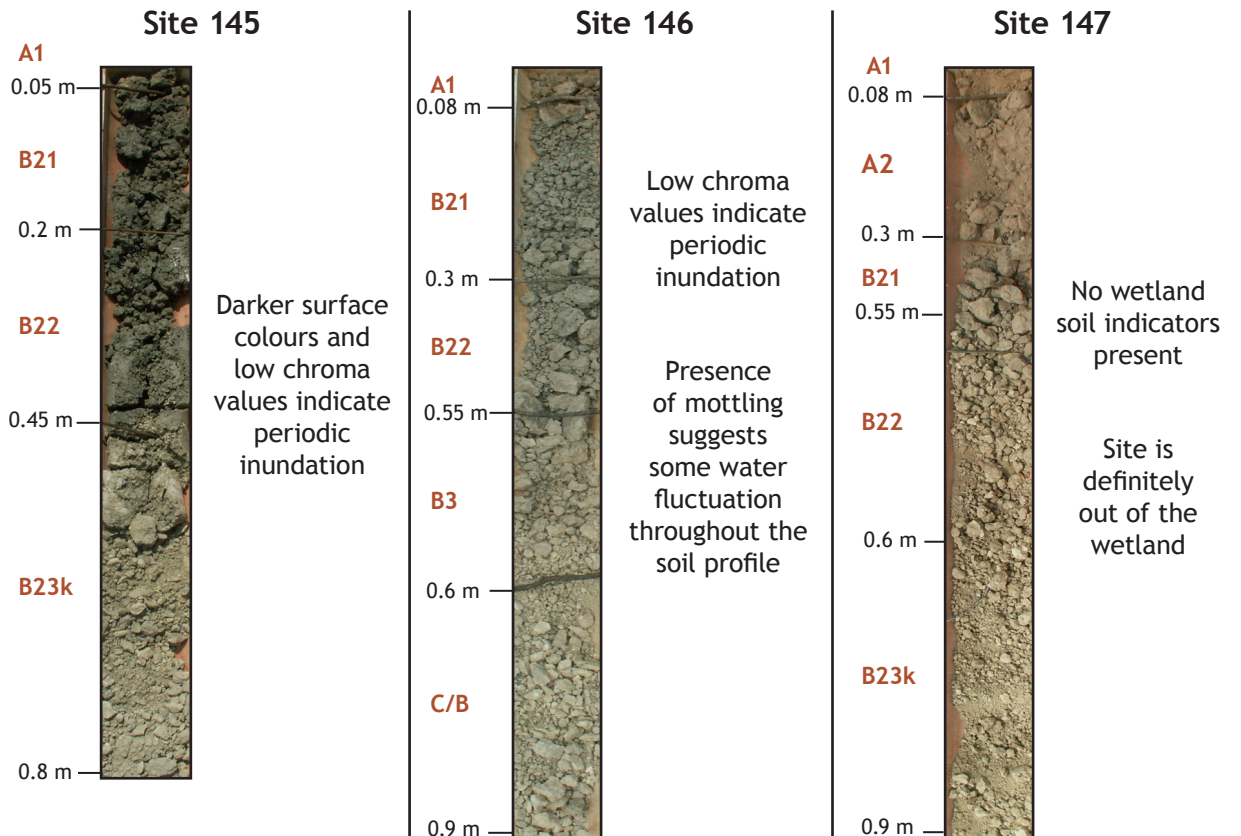
GDA94 • MGA Coordinates : 461432 E, 6971081 N, Zone 55 • Lat/Long : -27038301 S, 146.60994 E



Landscape Diagram



Soil Profiles



Soil Indicators Present (within 0.3 m of surface)

Indicator ⁶	Site 145	Site 146	Site 147
Organic materials and organic carbon (OC)*	No organic materials OC: 0.44%	No organic materials OC: 0.58%	No organic materials OC: 0.23%
Matrix colour	Dark grey	Brown to greyish brown	Brown to greyish brown
Chroma (thickness of layer)**	Present (0.3 m)	Present (0.28 m)	Not present
Mottles and Segregations	Few 2-6 mm calcareous concretions	Very few <5 mm faint grey mottles Very few <2 mm calcareous soft segregations	Not present
Depth to groundwater	Not present	Not present	Not present
Ferruginous root channel and pore linings	Not present	Not present	Not present
pH* ⁷	Strongly alkaline	Moderately alkaline	Slightly acid
Texture	Medium clay	Clay loam to light clay	Clayey sand to sandy loam
Acid sulfate material	Not present	Not present	Not present
Electrical Conductivity (EC) ⁷	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

- *Erogostis australascia* indicative of waterlogged conditions
- Darker soil surface colours in the saturated zone are indicative of wetter conditions
- Mottles in transition zone indicate water fluctuation throughout the soil profile
- Closed depression landform predisposed to inundation
- Low chroma values in saturated and transition zone suggest a periodically reduced environment
- Low organic carbon content and no organic materials indicate that the area has reduced seasonal growth and is drier and hotter, conditions which favour decomposition

References

1. DEWHA (2008). Australian Wetlands Database. [online]. Available at <http://www.environment.gov.au/water/publications/environmental/wetlands/database/> [accessed 21/08/08].
2. Queensland Department of Natural Resources and Water (2008). SILO [online]. Available at <http://www.longpaddock.qld.gov.au/silo/> [accessed 5/11/2007].
3. Isbell RF (2002). The Australian Soil Classification. CSIRO Publishing, Collingwood, Victoria, revised edition.
4. EPA (2008) Regional Ecosystems. [online]. Available at http://www.epa.qld.gov.au/nature_conservation/biodiversity/regional_ecosystems/ [accessed 28/06/08].
5. Bureau of Mineral Resources (1971). Wyandra: Australia 1:250,000 Geological Series, Bureau of Mineral Resources, Canberra.
6. 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.
7. 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%**
145	0.00-0.10	8.6	0.34	266	4	0.44	0.05
	0.20-0.30	9.3	0.41	83	1	0.27	0.04
	0.40-0.50	9.6	0.55	123	<1	0.86	<0.03
146	0.00-0.10	8.4	0.15	54	16	0.58	0.05
	0.20-0.30	9	0.72	896	12	0.29	0.03
147	0.40-0.50	8.9	1.14	1500	10	0.22	0.03
	0.00-0.10	6.4	0.06	24	22	0.23	<0.03
	0.20-0.30	6.2	0.24	237	9	0.29	<0.03
	0.40-0.50	9	1.08	1350	12	0.32	<0.03

*Aqueous 1:5

**Total carbon and total nitrogen

Soil Morphology

Site 145	Classification			Australian Soil Classification				Natric, Dermosolic, Oxyaquic Hydrosol		
	Horizon	Depth (m)	Boundary	Texture	Colour	Mottles	Coarse Fragments	Structure	Segregations	Consistence
A1	0 to .05	abrupt to	medium clay sandy	dark grey (5Y4)	none	none	moderate 20-50 mm angular blocky, strong 2-5 mm angular blocky	none	-	
B21	.05 to .25	clear to	medium clay	dark grey (5Y4)	none	none	strong 5-10 mm angular blocky, strong 2-5 mm angular blocky	none	-	
B22	.25 to .45	clear to	medium clay	grey (5Y6)	none	none	strong 5-10 mm angular blocky, strong <2 mm lenticular	few (2-10%) medium (2-6 mm) calcareous concretions	-	
B23k	.45 to .8	-	light clay	light grey (5Y7)	none	none	moderate 10-20 mm prismatic, weak 5-10 mm angular blocky	common (10-20%) medium (2-6 mm) calcareous soft segregations, few (2-10%) medium (2-6 mm) calcareous soft segregations, very few (<2%) medium (2-6 mm) manganese laminae	-	

Site 146		Classification			Australian Soil Classification				Calcareous, Calcarosolic, Redoxic Hydrosol		
		Landform Element			Swamp						
		Morphological Type			Closed depression						
Horizon	Depth (m)	Boundary	Texture	Colour	Mottles	Coarse Fragments	Structure	Segregations	Consistence		
A1	0 to .08	-	clay loam, sandy	brown (7.5YR43)	common (10-20%) fine (<5 mm) faint grey mottles	none	weak 2-5 mm subangular blocky	none	very firm dry		
B21	.08 to .3	-	light clay	dark greyish brown (10YR42)	very few (<2%) fine (<5 mm) faint grey mottles	none	strong 2-5 mm polyhedral	very few (<2%) fine (<2 mm) calcareous soft segregations	firm dry		
B22	.3 to .55	-	light clay	greyish brown (10YR52)	very few (<2%) fine (<5 mm) faint grey mottles	none	strong 5-10 mm subangular blocky	very few (<2%) fine (<2 mm) calcareous soft segregations	very firm dry		
B3	.55 to .65	-	light clay	light brownish grey (10YR62)	common (10-20%) fine (<5 mm) faint grey mottles	common (10-20%) angular sandstone medium pebbles (6-20 mm)	strong 5-10 mm subangular blocky	very few (<2%) medium (2-6 mm) calcareous soft segregations	very firm dry		
C/B	.65 to .9	-	light clay	light grey (10YR72)	few (2-10%) medium (5-15 mm) faint brown mottles	abundant (50-90%) angular sandstone medium pebbles (6-20 mm)	-	common (10-20%) medium (2-6 mm) calcareous soft segregations	very strong dry		

Site 147		Classification			Hypercalcic, Subnatric, Grey Vertosol				
		Landform Element			Hillslope				
		Morphological Type			Lower slope				
Horizon	Depth (m)	Boundary	Texture	Colour	Mottles	Coarse Fragments	Structure	Segregations	Consistence
A1	0 to .05	abrupt to	clayey sand	dark brown (7.5YR34)	none	none	massive	none	-
A2	.05 to .3	abrupt to	sandy loam	dark greyish brown (2.5Y43)	none	none	massive	none	-
B21	.3 to .4	clear to	sandy light clay	greyish brown (2.5Y52)	none	none	strong 10-20 mm columnar	none	-
B22	.4 to .7	clear to	light clay	light brownish grey (2.5Y63)	few (2-10%) fine (<5 mm) distinct orange mottles	none	moderate 5-10 mm angular blocky	few (2-10%) medium (2-6 mm) calcareous soft segregations, few (2-10%) medium (2-6 mm) ferromanganiferous soft segregations	-
B23k	.7 to 1	-	light clay	light grey (2.5Y72)	none	none	-	few (2-10%) medium (2-6 mm) calcareous concretions, few (2-10%) medium (2-6 mm) manganiferous nodules, very few (<2%) coarse (6-20 mm) calcareous concretions	-

