Project Name: **CSIRO Land and Water Consultancies**
Project Code: **CSIRO_LW** **Site ID:** **CP339** **Observation ID:** **1**
Agency Name: **CSIRO Land and Water (ACT)**

Site Information

Desc. By:	N.J. McKenzie	**Locality:**	Corowa, Pivot Site 6
Date Desc.:	19/08/99	**Elevation:**	No Data
Map Ref.:	DGPS	**Rainfall:**	No Data
Northing/Long.:	146.3371732	**Runoff:**	No Data
Easting/Lat.:	-35.91431396	**Drainage:**	Imperfectly drained

Geology

ExposureType:	Soil pit	**Conf. Sub. is Parent. Mat.:**	No Data
Geol. Ref.:	No Data	**Substrate Material:**	No Data

Land Form

Rel/Slope Class:	Gently undulating rises 9-30m 1-3%	**Pattern Type:**	Rises
Morph. Type:	Mid-slope	**Relief:**	10 metres
Elem. Type:	Hillslope	**Slope Category:**	Very gently sloped
Slope:	1 %	**Aspect:**	129 degrees

Surface Soil Condition (dry): Hardsetting

Erosion:

Soil Classification

Australian Soil Classification:
Vertic Mesotrophic Red Dermosol Thin Non-gravelly Clay-loamy Clayey Very deep

Mapping Unit: N/A
Principal Profile Form: N/A

ASC Confidence:
All necessary analytical data are available.

Great Soil Group: N/A

Site Disturbance: Cultivation. Irrigated, past or present

Vegetation: Low Strata - Tussock grass, 1.01-3m, Closed or dense. *Species includes - None recorded

Surface Coarse Fragments: No surface coarse fragments

Profile Morphology

A11	0 - 0.08 m	Dark reddish brown (5YR3/3-Moist); ; Sandy clay loam, fine sandy; Weak grade of structure, 20-50 mm, Subangular blocky; Rough-ped fabric; Moderately moist; Firm consistence; Field pH 6 (Raupach); Abundant, very fine (0-1mm) roots; Clear, Smooth change to -
A2p	0.08 - 0.15 m	Reddish brown (5YR4/4-Moist); Yellowish red (5YR5/6-Dry); ; Clay loam, fine sandy; Massive grade of structure; Rough-ped fabric; Moderately moist; Very firm consistence; Field pH 6 (Raupach); Many, very fine (0-1mm) roots; Abrupt, Smooth change to -
B21	0.15 - 0.32 m	Red (2.5YR4/6-Moist); Biological mixing, 2.5YR43, 10-20% , 5-15mm, Distinct; Light medium clay; Weak grade of structure, 10-20 mm, Polyhedral; Earthy fabric; Moderately moist; Firm consistence; Few cutans, <10% of ped faces or walls coated, faint; Field pH 6.5 (Raupach); Many, fine (1-2mm) roots; Gradual, Smooth change to -
B22	0.32 - 0.5 m	Red (2.5YR5/6-Moist); Mottles, 5YR56, 10-20% , 15-30mm, Distinct; , 2.5YR43; Light medium clay; Weak grade of structure, 10-20 mm, Polyhedral; Earthy fabric; Moderately moist; Firm consistence; Common cutans, 10-50% of ped faces or walls coated, distinct; Very few (0 - 2 %), Ferromanganiferous, Coarse (6 - 20 mm), Concretions; , Argillaceous, Coarse (6 - 20 mm), Soft segregations; Field pH 6.5 (Raupach); Many, very fine (0-1mm) roots; Clear, Smooth change to -
B23	0.5 - 0.8 m	Reddish yellow (7.5YR6/8-Moist); Mottles, 2.5YR56, 20-50% , 15-30mm, Prominent; Light medium clay; Moderate grade of structure, 10-20 mm, Polyhedral; Rough-ped fabric; Moist; Firm consistence; Common cutans, 10-50% of ped faces or walls coated, distinct; Few (2 - 10 %), Ferromanganiferous, Coarse (6 - 20 mm), Concretions; , Argillaceous, Coarse (6 - 20 mm), Soft segregations; Field pH 6.5 (Raupach); Few, very fine (0-1mm) roots; Gradual, Smooth change to -
B24	0.8 - 1.1 m	Light yellowish brown (10YR6/4-Moist); Mottles, 10YR72, 20-50% , 15-30mm, Distinct; , 7.5YR54; Light medium clay; Moderate grade of structure, 10-20 mm, Polyhedral; Strong grade of structure, 5-10 mm, Polyhedral; Smooth-ped fabric; Moist; Firm consistence; Many cutans, >50% of ped faces or walls coated, prominent; Few (2 - 10 %), Ferromanganiferous, Coarse (6 - 20 mm), Concretions; , Ferromanganiferous, Coarse (6 - 20 mm), Tubules; , Ferromanganiferous, Coarse (6 - 20 mm), Laminae; Field pH 6.5 (Raupach); Gradual, Smooth change to -

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B31	1.1 - 1.8 m	Brown (7.5YR5/4-Moist); Mottles, 2.5YR46, 20-50% , 15-30mm, Distinct; , 7.5YR31, 20-50% , 15-30mm, Distinct; Light medium clay; Strong grade of structure, 50-100 mm, Lenticular; Strong grade of structure, 5-10 mm, Polyhedral; Smooth-ped fabric; Moist; Firm consistence; Many cutans, >50% of ped faces or walls coated, prominent; Few (2 - 10 %), Ferromanganiferous, Coarse (6 - 20 mm), Concretions; , Ferromanganiferous, Coarse (6 - 20 mm), Tubules; , Ferromanganiferous, Coarse (6 - 20 mm), Laminae; Field pH 8.5 (Raupach); Diffuse change to -
B32	1.8 - 2.4 m	Brown (7.5YR5/4-Moist); Mottles, 2.5YR46, 20-50% , 15-30mm, Distinct; , 7.5YR31; Light medium clay; Few (2 - 10 %), Calcareous, Coarse (6 - 20 mm), ; Gradual change to -
B33	2.4 - 2.8 m	; Clear change to -
D1	2.8 - 3.2 m	;

Morphological Notes

Observation Notes

Profile may be almost entirely parna. Slickensides in layer 7 are very promiment. Structure in B23/B24/B3 is strong when displaced but barely discernable in situ.

Site Notes

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Laboratory Test Results:

Depth	pH	1:5 EC	Exchangeable Cations Ca	Mg	K	Na	Exchangeable Acidity	CEC	ECEC	ESP
m		dS/m				Cmol (+)/kg				%
0 - 0.08	4.5C 5.8A	0.16A	3.9D	0.9	2.7	0.32		12.1L	7.9D	2.64
0.08 - 0.15	4.8C 5.8A	0.29A	3.5D	0.89	2.6	0.41		10.2L	7.4D	4.02
0.15 - 0.32	5.2C 5.9A	0.42A	2.5D	1	3.2	0.27		8.5L	7D	3.18
0.15 - 0.35										
0.32 - 0.5	5.5C 5.9A	0.58A	3.2D	2.1	3.1	0.29		10.8L	8.6D	2.69
0.5 - 0.8	5C 5.2A	0.47A	3.2D	4	1.1	0.28		11.3L	8.6D	2.48
0.5 - 0.7										
0.8 - 1.1	6.1C 6.8A	0.31A	3.8D	8.1	1	1.5		16.5L	14.4D	9.09
1.1 - 1.8	7C 8.2A	0.16A	4.9E	9.4	1.1	2.3		21.4B	17.7D	10.75
1.2 - 1.4										
1.8 - 2.4	8C 9A	0.23A	6.4E	13	0.94	3.2		24.7B	23.5D	12.96
2.4 - 2.8	7.6C 8.9A	0.13A	6E	12.1	0.74	3.2		24.4B	22.1D	13.11
2.8 - 3.2	7.4C 8.8A	0.12A	5.6E	11.1	0.74	3.2		23.2B	20.6D	13.79

Depth	CaCO3	Organic C	Avail. P	Total P	Total N	Total K	Bulk Density	Particle Size Analysis GV	CS	FS	Silt	Clay
m	%	%	mg/kg	%	%	%	Mg/m3			%		
0 - 0.08		2.18C						0.03				
0.08 - 0.15		1.54C						0.1				
0.15 - 0.32		0.48C						0.2				
0.15 - 0.35							1.65					
							1.65					
							1.64					
							1.62					
0.32 - 0.5		0.29C						0.4				
0.5 - 0.8		0.14C						0.5				
0.5 - 0.7							1.59					
							1.63					
							1.53					
							1.56					
0.8 - 1.1		0.13C						0.3				
1.1 - 1.8		0.08C						0.9				
1.2 - 1.4							1.55					
							1.52					
							1.55					
							1.57					
1.8 - 2.4		0.09C						2.7				
2.4 - 2.8		0.04C						1.2				
2.8 - 3.2		0.04C						1.3				

Depth	COLE	Gravimetric/Volumetric Water Contents Sat.	0.05 Bar	0.1 Bar	0.5 Bar	1 Bar	5 Bar	15 Bar	K sat	K unsat

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m	g/g -		m3/m3			mm/h	mm/h
0 - 0.08							
0.08 - 0.15							
0.15 - 0.32							
0.15 - 0.35	0.29E	0.28E	0.19E	0.18F	0.17F	71D	173B
	0.28E	0.27E	0.18E	0.16F	0.15F	132D	200B
	0.27E	0.25E	0.18E	0.16F	0.15F	112D	1230B
	0.27E	0.25E	0.17E	0.15F	0.14F	136D	151B
0.32 - 0.5							
0.5 - 0.8							
0.5 - 0.7	0.34E	0.33E	0.27E	0.27F	0.25F	46D	244B
	0.35E	0.34E	0.29E	0.28F	0.25F	35D	131B
	0.35E	0.33E	0.28E	0.26F	0.24F		
	0.34E	0.33E	0.28E	0.25F	0.25F		
0.8 - 1.1							
1.1 - 1.8							
1.2 - 1.4	0.4E	0.39E	0.37E	0.35F	0.32F	751D	46B
	0.41E	0.4E	0.38E	0.35F	0.33F	18D	45B
	0.41E	0.39E	0.4E	0.35F	0.33F	177D	124B
	0.39E	0.38E	0.39E	0.34F	0.32F	9D	70B
1.8 - 2.4							
2.4 - 2.8							
2.8 - 3.2							

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Laboratory Analyses Completed for this profile

15B2_CA	Exchangeable bases (Ca2+,Mg2+,Na+,K+) - 1M ammonium chloride at pH 7.0, pretreatment for soluble salts
15B2_CEC	CEC - 1M ammonium chloride at pH 7.0, pretreatment for soluble salts
15B2_K	Exchangeable bases and CEC - 1M ammonium chloride at pH 7.0, pretreatment for soluble salts
15B2_MG	Exchangeable bases and CEC - 1M ammonium chloride at pH 7.0, pretreatment for soluble salts
15B2_NA	Exchangeable bases and CEC - 1M ammonium chloride at pH 7.0, pretreatment for soluble salts
15C1_CA	Exchangeable bases (Ca2+,Mg2+,Na+,K+) - alcoholic 1M ammonium chloride at pH 8.5, pretreatment for soluble salts
15C1_CEC	CEC - alcoholic 1M ammonium chloride at pH 8.5, pretreatment for soluble salts
15C1_K	Exchangeable bases and CEC - alcoholic 1M ammonium chloride at pH 8.5, pretreatment for soluble salts
15C1_MG	Exchangeable bases and CEC - alcoholic 1M ammonium chloride at pH 8.5, pretreatment for soluble salts
15C1_NA	Exchangeable bases and CEC - alcoholic 1M ammonium chloride at pH 8.5, pretreatment for soluble salts
15J_BASES	Sum of Bases
3A1	EC of 1:5 soil/water extract
4A1	pH of 1:5 soil/water suspension
4B2	pH of 1:5 soil/0.01M calcium chloride extract - following Method 4A1
5A1	Chloride - 1:5 soil/water extract, potentiometric titration
6B3	Total organic carbon - high frequency induction furnace, infrared
P10_GRAV	Gravel (%)
P10_S_0.48	0.48 micron (cumulative %) - Sedigraph
P10_S_1	1 micron (cumulative %) - Sedigraph
P10_S_1000	1000 micron (cumulative %) - Sedigraph
P10_S_125	125 micron (cumulative %) - Sedigraph
P10_S_15.6	15.6 micron (cumulative %) - Sedigraph
P10_S_2	2 micron (cumulative %) - Sedigraph
P10_S_20	20 micron (cumulative %) - Sedigraph
P10_S_2000	2000 micron (cumulative %) - Sedigraph
P10_S_250	250 micron (cumlative %) - Sedigraph
P10_S_3.9	3.9 micron (cumulative %) - Sedigraph
P10_S_31.2	31.2 micron (cumulative %) - Sedigraph
P10_S_500	500 micron (cumulative %) - Sedigraph
P10_S_53	53 micron (cumulative %) - Sedigraph
P10_S_63	63 micron (cumulative %) - Sedigraph
P10_S_7.8	7.8 micron (cumulative %) - Sedigraph
P3A1	Bulk density - g/cm3
P3B2VL_1	1 BAR Moisture m3/m3 - Volumetric using disturbed sample on pressure plate
P3B2VL_15	15 BAR Moisture m3/m3 - Volumetric using disturbed sample on pressure plate
P3B2VL_5	5 BAR Moisture m3/m3 - Volumetric using disturbed sample on pressure plate
P3B3VLb001	0.01 BAR Moisture m3/m3 - Volumetric using undisturbed 73mm diameter and 75mm height core on suction plate taken from center of large core (CSIRO Div of Soil, DR 125, McKenzie and Jacquier, 1996)
P3B3VLb003	0.03 BAR Moisture m3/m3 - Volumetric using undisturbed 73mm diameter and 75mm height core on suction plate taken from center of large core (CSIRO Div of Soil, DR 125, McKenzie and Jacquier, 1996)
P3B3VLb005	0.05 BAR Moisture m3/m3 - Volumetric using undisturbed 73mm diameter and 75mm height core on suction plate taken from center of large core (CSIRO Div of Soil, DR 125, McKenzie and Jacquier, 1996)
P3B3VLb01	0.1 BAR Moisture m3/m3 - Volumetric using undisturbed 73mm diameter and 75mm height core on suction plate taken from center of large core (CSIRO Div of Soil, DR 125, McKenzie and Jacquier, 1996)
P3B3VLb03	0.33 BAR Moisture m3/m3 - Volumetric using undisturbed 73mm diameter and 75mm height core on suction plate taken from center of large core (CSIRO Div of Soil, DR 125, McKenzie and Jacquier, 1996)
P3B3VLb06	0.66 BAR Moisture m3/m3 - Volumetric using undisturbed 73mm diameter and 75mm height core on suction plate taken from center of large core (CSIRO Div of Soil, DR 125, McKenzie and Jacquier, 1996)
P4_100DMcK	Unsaturated Hydraulic Conductivity - 100mm potential - Using disk permeameter with method CSIRO Div of Soil, DR 125, McKenzie and Jacquier, 1996

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P4_10DMcK	Unsaturated Hydraulic Conductivity - 10mm potential - Using disk permeameter with method CSIRO Div of Soil, DR 125, McKenzie and Jacquier, 1996
P4_50DMcK	Unsaturated Hydraulic Conductivity - 50mm potential - Using disk permeameter with method CSIRO Div of Soil, DR 125, McKenzie and Jacquier, 1996
P4_sat_McK	Saturated Hydraulic Conductivity (CSIRO Div of Soil, DR 125, McKenzie and Jacquier, 1996)