Project Name: **CSIRO Land and Water Consultancies**
Project Code: **CSIRO_LW** **Site ID:** **CP338** **Observation ID:** **1**
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Site Information

Desc. By:	N.J. McKenzie	**Locality:**	Corowa, Pivot Site 3
Date Desc.:	18/08/99	**Elevation:**	No Data
Map Ref.:	DGPS	**Rainfall:**	No Data
Northing/Long.:	146.33072168	**Runoff:**	No Data
Easting/Lat.:	-35.91922433	**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:	Level plain <9m <1%	**Pattern Type:**	Low hills
Morph. Type:	Mid-slope	**Relief:**	40 metres
Elem. Type:	Hillslope	**Slope Category:**	Very gently sloped
Slope:	2 %	**Aspect:**	41 degrees

Surface Soil Condition (dry): Hardsetting, Surface crust

Erosion:

Soil Classification

Australian Soil Classification:
Manganic-Acidic 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: 0-2%, coarse gravelly, 20-60mm, angular, Quartz

Profile Morphology

A11	0 - 0.12 m	Reddish brown (5YR4/4-Moist); ; Sandy clay loam, fine sandy; Massive grade of structure; Rough-ped fabric; Moderately moist; Very firm consistence; Moderately plastic; Normal plasticity; Slightly sticky; 0-2%, coarse gravelly, 20-60mm, angular, dispersed, Quartz, coarse fragments; Field pH 7 (Raupach); Many, very fine (0-1mm) roots; Abrupt, Wavy change to -
A2p	0.12 - 0.25 m	Yellowish red (5YR4/6-Moist); Reddish yellow (5YR6/6-Dry); ; Clay loam; Massive grade of structure; Rough-ped fabric; Moderately moist; Very firm consistence; Moderately plastic; Normal plasticity; Slightly sticky; 0-2%, coarse gravelly, 20-60mm, angular, dispersed, Quartz, coarse fragments; Field pH 6.5 (Raupach); Many, very fine (0-1mm) roots; Clear, Wavy change to
B21	0.25 - 0.45 m	Red (2.5YR4/6-Moist); Mottles, 7.5YR56, 10-20% , 30-mm, Distinct; Light medium clay; Moderate grade of structure, 20-50 mm, Polyhedral; Rough-ped fabric; Moderately moist; Very firm consistence; Very plastic; Normal plasticity; Moderately sticky; Few cutans, <10% of ped faces or walls coated, distinct; Field pH 6 (Raupach); Common, very fine (0-1mm) roots; Diffuse, Smooth change to -
B22	0.45 - 0.85 m	Red (2.5YR4/6-Moist); Mottles, 10YR66, 20-50% , 15-30mm, Distinct; Light medium clay; Moderate grade of structure, 20-50 mm, Polyhedral; Rough-ped fabric; Moderately moist; Very firm consistence; Very plastic; Normal plasticity; Moderately sticky; Common cutans, 10-50% of ped faces or walls coated, distinct; Few (2 - 10 %), Ferromanganiferous, Medium (2 -6 mm), Concretions; , Ferromanganiferous, Medium (2 -6 mm), Tubules; Field pH 6 (Raupach); Few, very fine (0-1mm) roots; Gradual, Smooth change to -
B31	0.85 - 1.15 m	Yellowish brown (10YR5/6-Moist); Mottles, 2.5YR58, 10-20% , 15-30mm, Prominent; , 5YR31; Light medium clay; Moderate grade of structure, 20-50 mm, Polyhedral; Moderate grade of structure, 10-20 mm, Polyhedral; Rough-ped fabric; Moderately moist; Very firm consistence; Very plastic; Subplastic; Very sticky; Many cutans, >50% of ped faces or walls coated, prominent; Many (20 - 50 %), Ferromanganiferous, Coarse (6 - 20 mm), Concretions; , Ferromanganiferous, Coarse (6 - 20 mm), Tubules; , Ferromanganiferous, Coarse (6 - 20 mm), Laminae; Field pH 7.5 (Raupach); Diffuse, Smooth change to -

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B32	1.15 - 1.8 m	Yellowish brown (10YR5/6-Moist); Mottles, 2.5YR58, 20-50% , 15-30mm, Prominent; , 5YR31; Light medium clay; Moderate grade of structure, 10-20 mm, Polyhedral; Moderate grade of structure, 5-10 mm, Polyhedral; Rough-ped fabric; Moderately moist; Very firm consistence; Very plastic; Subplastic; Very sticky; Many cutans, >50% of ped faces or walls coated, prominent; Common (10 - 20 %), Manganiferous, Coarse (6 - 20 mm), Tubules; , Manganiferous, Coarse (6 - 20 mm), Laminae; Field pH 8.5 (Raupach);

Morphological Notes

Observation Notes

Mixed parent material. Colluvium from adjacent hill 300m south mixed with substantial parna. Structure is difficult in B - massive in situ but strongly pedal when displaced. Typical strongly pedologic development as found in 'parna' sites.

Site Notes

Dense oats sown for silage; adjacent to neutron probe calibration site of Chris Smith/Val Snow

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Laboratory Test Results:

Depth	pH	1:5 EC	Exchangeable Cations				Exchangeable	CEC	ECEC	ESP
			Ca	Mg	K	Na	Acidity			
m		dS/m	Cmol (+)/kg							%
0 - 0.12	5C	0.17A	2.5D	0.64	2.4	0.37		7.3L	5.9D	5.07
0 - 0.2	6.3A									
0.12 - 0.25	5C	0.38A	1.3D	0.49	2.1	0.24		5.3L	4.1D	4.53
0.25 - 0.45	5.8A	0.59A	2.5D	2.1	2	0.2		9.3L	6.7D	2.15
0.25 - 0.45	4.5C	0.59A	2.5D	2.1	2	0.2		9.3L	6.7D	2.15
0.45 - 0.85	4.8A	0.3A	2.6D	4.7	0.85	0.51		12.2L	8.7D	4.18
0.85 - 1.15	4.7C	0.06A	3.2E	5.3	0.67	1.6		13.9B	10.8D	11.51
0.9 - 1.1	5.1A									
1.15 - 1.8	6.5C	0.06A	4.9E	8	0.83	2.4		19.7B	16.2D	12.18
	8.1A									
	7.3C									
	8.9A									

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 - 0.12		1.21C						2.8				
0 - 0.2							1.61					
							1.50					
							1.48					
							1.55					
0.12 - 0.25		0.32C						0.3				
0.25 - 0.45		0.34C					1.58	0.6				
							1.63					
							1.64					
							1.64					
0.25 - 0.45		0.34C					1.58	0.6				
							1.63					
							1.64					
							1.64					
0.45 - 0.85		0.13C						0.9				
0.85 - 1.15		0.07C						4.8				
0.9 - 1.1							1.78					
							1.71					
							1.67					
							1.82					
1.15 - 1.8		0.05C						4.9				

Depth	COLE	Gravimetric/Volumetric Water Contents						K sat	K unsat
		Sat.	0.05 Bar	0.1 Bar	0.5 Bar	1 Bar	5 Bar	15 Bar		
m		g/g - m3/m3						mm/h	mm/h
0 - 0.12									
0 - 0.2			0.34E	0.32E		0.14E	0.11F	0.08F	56D	16B
			0.33E	0.3E		0.13E	0.1F	0.08F	116D	425B
			0.31E	0.28E		0.12E	0.1F	0.07F	100D	387B
			0.32E	0.29E		0.14E	0.1F	0.08F	20D	37B

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0.12 - 0.25							
0.25 - 0.45	0.33E	0.32E	0.26E	0.25F	0.23F	98D	59B
	0.33E	0.32E	0.27E	0.25F	0.24F	171D	414B
	0.33E	0.32E	0.28E	0.26F	0.24F	197D	46B
	0.33E	0.32E	0.28E	0.25F	0.25F	207D	97B
0.25 - 0.45	0.33E	0.32E	0.26E	0.25F	0.23F	98D	59B
	0.33E	0.32E	0.27E	0.25F	0.24F	171D	414B
	0.33E	0.32E	0.28E	0.26F	0.24F	197D	46B
	0.33E	0.32E	0.28E	0.25F	0.25F	207D	97B
0.45 - 0.85							
0.85 - 1.15							
0.9 - 1.1	0.31E	0.3E	0.28E	0.24F	0.23F	14D	80B
	0.33E	0.32E	0.31E	0.27F	0.26F	141D	7B
	0.31E	0.3E	0.26E	0.23F	0.22F	1D	1B
	0.31E	0.3E	0.3E	0.25F	0.23F	39D	23B
1.15 - 1.8							

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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)