Project Name: **Improving Soil Survey Field Measurement and Interpretation. LWRRDC Project No. 90/R16**
Project Code: **Morphology** **Site ID:** **CP327** **Observation ID:** **1**
Agency Name: **CSIRO Division of Soils (ACT)**

Site Information

Desc. By:	N.J. McKenzie	**Locality:**	
Date Desc.:	04/03/93	**Elevation:**	1128 metres
Map Ref.:	Sheet No. : 8726-1-S 1:25000	**Rainfall:**	No Data
Northing/Long.:	6043800 AMG zone: 55	**Runoff:**	Moderately rapid
Easting/Lat.:	708700 Datum: AGD66	**Drainage:**	Well drained

Geology

ExposureType:	Soil pit	**Conf. Sub. is Parent. Mat.:**	No Data
Geol. Ref.:	No Data	**Substrate Material:**	Soil pit, 0.9 m deep,Porous, Schist

Land Form

Rel/Slope Class:	Undulating low hills 30-90m 3-10%	**Pattern Type:**	Low hills
Morph. Type:	Mid-slope	**Relief:**	80 metres
Elem. Type:	Hillslope	**Slope Category:**	Gently inclined
Slope:	10 %	**Aspect:**	70 degrees

Surface Soil Condition (dry): Firm

Erosion:

Soil Classification

Australian Soil Classification:
Red Kandosol
ASC Confidence:
No analytical data are available but confidence is fair.

Mapping Unit: N/A
Principal Profile Form: Gn4.12
Great Soil Group: N/A

Site Disturbance: Complete clearing. Pasture, native or improved, cultivated at some stage

Vegetation: Low Strata - Tussock grass, <0.25m, Mid-dense. *Species includes - None recorded
Mid Strata - Hummock grass, 1.01-3m, Mid-dense. *Species includes - None recorded

Surface Coarse Fragments: No surface coarse fragments

Profile Morphology

A11p	0 - 0.08 m	Very dark greyish brown (10YR3/2-Moist); Mechanical, 10YR54, 20-50% , 15-30mm, Distinct; Silty loam; Massive grade of structure; Earthy fabric; Moderately moist; Weak consistence; Field pH 6 (Raupach); Many, fine (1-2mm) roots; Gradual, Smooth change to -
A12p	0.08 - 0.13 m	Very dark greyish brown (10YR3/2-Moist); Mechanical, 10YR54, 20-50% , 15-30mm, Distinct; Silty loam; Massive grade of structure; Earthy fabric; Moderately moist; Weak consistence; Field pH 6.5 (Raupach); Many, fine (1-2mm) roots; Sharp, Smooth change to -
A21	0.13 - 0.24 m	Dark yellowish brown (10YR4/4-Moist); Light yellowish brown (10YR6/4-Dry); ; Silty loam; Massive grade of structure; Earthy fabric; Moderately moist; Weak consistence; Field pH 6 (Raupach); Common, very fine (0-1mm) roots; Gradual, Smooth change to -
A22	0.24 - 0.34 m	Strong brown (7.5YR4/6-Moist); ; Silty clay loam; Massive grade of structure; Earthy fabric; Moderately moist; Weak consistence; Field pH 6 (Raupach); Common, very fine (0-1mm) roots; Gradual, Smooth change to -
B1	0.34 - 0.48 m	Reddish brown (5YR4/4-Moist); ; Silty clay loam; Massive grade of structure; Rough-ped fabric; Moderately moist; Firm consistence; 0-2%, fine gravelly, 2-6mm, subangular, dispersed, Schist, coarse fragments; Field pH 6 (Raupach); Few, very fine (0-1mm) roots; Clear, Smooth change to -
B21	0.48 - 0.65 m	Reddish brown (5YR4/4-Moist); ; Clay loam (Heavy); Massive grade of structure; Rough-ped fabric; Moderately moist; Firm consistence; 2-10%, medium gravelly, 6-20mm, subangular, dispersed, Schist, coarse fragments; Field pH 6 (Raupach); Few, very fine (0-1mm) roots; Diffuse, Smooth change to -
B22	0.65 - 0.8 m	Reddish brown (5YR4/4-Moist); ; Clay loam (Heavy); Massive grade of structure; Rough-ped fabric; Moderately moist; Firm consistence; 10-20%, medium gravelly, 6-20mm, subangular, dispersed, Schist, coarse fragments; Field pH 6 (Raupach); Few, very fine (0-1mm) roots; Clear, Smooth change to -
C	0.8 - m	Dark yellowish brown (10YR4/4-Moist); ; Moderately moist;

Morphological Notes

A11p A1p ploughed layer - Mix of A1/A2

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C	Vertically dipping C

Observation Notes

Invasion of Poa rendering site unproductive for grazing. Increasing 'schist gravel' at base of profile - fines upwards. Soil varies locally to a yellow and grey variant with stronger A2 horizon. Some salt in landscape.

Site Notes

Little Tinderry (Morph 26)

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Laboratory Test Results:

Depth m	pH	1:5 EC dS/m	Exchangeable Cations Ca	 Mg	 K	 Na Cmol (+)/kg	Exchangeable Acidity	CEC	ECEC	ESP %
0 - 0.08	5.44A	0.06A	4.6B	0.82	0.46			10A		
0.08 - 0.13	5.66A	0.03A	3.5B	0.64	0.24			7.2A		
0.13 - 0.24	5.76A	0.02A	1.9B	0.55	0.22	0.03		4.6A		0.65
0.13 - 0.24	5.76A	0.02A	1.9B	0.55	0.22	0.03		4.6A		0.65
0.13 - 0.24	5.76A	0.02A	1.9B	0.55	0.22	0.03		4.6A		0.65
0.24 - 0.34	5.68A	0.01A	1.4B	0.83	0.19	0.05		5.7A		0.88
0.34 - 0.48	5.8A	0.01A	1.7B	1.6	0.33	0.02		6.7A		0.30
0.34 - 0.54										
0.34 - 0.54										
0.48 - 0.65	6.15A	0.01A	1.5B	1.5	0.4	0.04		6.5A		0.62
0.65 - 0.8	6.16A	0.01A	1.2B	1.2	0.38	0.02		5.4A		0.37
0.8 -	6.07A	0.01A	0.43B	0.51	0.34	0.07		4.1A		1.71

Depth m	CaCO3 %	Organic C %	Avail. P mg/kg	Total P %	Total N %	Total K %	Bulk Density Mg/m3	Particle Size Analysis GV	 CS	 FS %	 Silt	 Clay
0 - 0.08		2.73B						0				
0.08 - 0.13		1.5B						0				
0.13 - 0.24		0.48B					1.50	0				
							1.52					
							1.48					
							1.49					
							1.55					
0.13 - 0.24		0.48B					1.50	0				
							1.52					
							1.48					
							1.49					
							1.55					
0.13 - 0.24		0.48B					1.50	0				
							1.52					
							1.48					
							1.49					
							1.55					
0.24 - 0.34		0.35B						0				
0.34 - 0.48		0.25B					1.75	0				
0.34 - 0.54							1.66					
							1.61					
							1.64					
							1.63					
0.34 - 0.54							1.66					
							1.61					
							1.64					
							1.63					
0.48 - 0.65		0.13B						22				
0.65 - 0.8		0.07B						29				
0.8 -		0.02B						0				

Depth m	COLE	Gravimetric/Volumetric Water Contents Sat.	 0.05 Bar	 0.1 Bar g/g -	 0.5 Bar m3/m3	 1 Bar	 5 Bar	 15 Bar	K sat mm/h	K unsat mm/h

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0 - 0.08									
0.08 - 0.13									
0.13 - 0.24	0.017B	0.38E	0.34E	0.31E	0.25D	0.16F	0.11F	41.8D	11.8A
		0.38E	0.34E	0.31E	0.25D	0.16F	0.11F		
		0.38E	0.35E	0.33E	0.26D				
		0.39E	0.35E	0.33E	0.26D				
0.13 - 0.24	0.017B	0.38E	0.34E	0.31E	0.25D	0.16F	0.11F	41.8D	11.8A
		0.38E	0.34E	0.31E	0.25D	0.16F	0.11F		
		0.38E	0.35E	0.33E	0.26D				
		0.39E	0.35E	0.33E	0.26D				
0.13 - 0.24	0.017B	0.38E	0.34E	0.31E	0.25D	0.16F	0.11F	41.8D	11.8A
		0.38E	0.34E	0.31E	0.25D	0.16F	0.11F		
		0.38E	0.35E	0.33E	0.26D				
		0.39E	0.35E	0.33E	0.26D				
0.24 - 0.34									
0.34 - 0.48	0.021B								
0.34 - 0.54		0.36E	0.36E	0.33E	0.32D	0.21F	0.18F	1.65D	0.8A
		0.36E	0.35E	0.33E	0.32D	0.21F	0.18F		
		0.36E	0.36E	0.33E	0.32D				
		0.36E	0.36E	0.34E	0.33D				
0.34 - 0.54		0.36E	0.36E	0.33E	0.32D	0.21F	0.18F	1.65D	0.8A
		0.36E	0.35E	0.33E	0.32D	0.21F	0.18F		
		0.36E	0.36E	0.33E	0.32D				
		0.36E	0.36E	0.34E	0.33D				
0.48 - 0.65									
0.65 - 0.8									
0.8 -									

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Laboratory Analyses Completed for this profile

15A2_CA	Exchangeable bases (Ca2+,Mg2+,Na+,K+) - 1M ammonium chloride at pH 7.0, pretreatment for soluble salts
15A2_CEC	Exchangeable bases- 1M ammonium chloride at pH 7.0, pretreatment for soluble salts
15A2_K	Exchangeable bases- 1M ammonium chloride at pH 7.0, pretreatment for soluble salts
15A2_MG	Exchangeable bases- 1M ammonium chloride at pH 7.0, pretreatment for soluble salts
15A2_NA	Exchangeable bases- 1M ammonium chloride at pH 7.0, pretreatment for soluble salts
3A1	EC of 1:5 soil/water extract
4A1	pH of 1:5 soil/water suspension
5A1	Chloride - 1:5 soil/water extract, potentiometric titration
6B2	Total organic carbon - high frequency induction furnace, volumetric
P10_GRAV	Gravel (%)
P10_S_0.20	0.20 micron (cumulative %) - Sedigraph
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_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)
P3B3VLb05	0.5 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)
P3B3VLbSAT	Saturated 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_50_McK	Unsaturated Hydraulic Conductivity - 50mm potential (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)
P5_LS_MOD	Modified linear shrinkage (McKenzie, Jacquier and Ringrose-Voase, AJSR, 1994, 32, 931-8)