Project Name: **BAGO-MARAGLE ESM**
Project Code: **BGM_ESM** **Site ID:** **1012** **Observation ID:** **1**
Agency Name: **CSIRO Division of Soils (ACT)**

Site Information

Desc. By:	P. Ryan	**Locality:**	
Date Desc.:	24/01/95	**Elevation:**	1086 metres
Map Ref.:	Sheet No. : 8526 DGPS	**Rainfall:**	No Data
Northing/Long.:	6058506 AMG zone: 55	**Runoff:**	Very slow
Easting/Lat.:	604059 Datum: AGD66	**Drainage:**	Well drained

Geology

ExposureType:	Soil pit	**Conf. Sub. is Parent. Mat.:**	Probable
Geol. Ref.:	SGGH	**Substrate Material:**	Granodiorite

Land Form

Rel/Slope Class:	No Data	**Pattern Type:**	No Data
Morph. Type:	Upper-slope	**Relief:**	No Data
Elem. Type:	Hillslope	**Slope Category:**	No Data
Slope:	9 %	**Aspect:**	90 degrees

Surface Soil Condition (dry): Firm

Erosion:

Soil Classification

Australian Soil Classification:
Acidic Dystrophic Red Kandosol Thin Slightly gravelly Clay-loamy Clayey Very deep

Mapping Unit: N/A
Principal Profile Form: Gn2.11

ASC Confidence:
All necessary analytical data are available.

Great Soil Group: Red earth

Site Disturbance: No effective disturbance. Natural

Vegetation:

Surface Coarse Fragments:

Profile Morphology

O1	0 - 0.02 m	Organic Layer; ;
O2	0.02 - 0.06 m	Organic Layer; ;
A1	0.06 - 0.09 m	Dark reddish brown (5YR3/2-Moist); ; Clay loam; Strong grade of structure, <2 mm, Granular; Rough-ped fabric; Moderately moist; Loose consistence; 2-10%, fine gravelly, 2-6mm, angular tabular, dispersed, Coal, coarse fragments; Field pH 6 (pH meter); Many, very fine (0-1mm) roots; Common, fine (1-2mm) roots; Common, medium (2-5mm) roots; Abrupt, Wavy change to -
A3	0.09 - 0.17 m	Reddish brown (5YR4/4-Moist); Biological mixing, 5YR32, 10-20% , Faint; Light clay; Strong grade of structure, 2-5 mm, Polyhedral; 100-200 mm, Prismatic; Rough-ped fabric; Moderately moist; Weak consistence; Field pH 6 (pH meter); Common, very fine (0-1mm) roots; Few, fine (1-2mm) roots; Few, medium (2-5mm) roots; Few, coarse (>5mm) roots; Abrupt, Smooth change to -
B1	0.17 - 0.32 m	Reddish brown (2.5YR4/4-Moist); Biological mixing, 5YR32, 2-10% , Distinct; Light clay; Moderate grade of structure, 10-20 mm, Polyhedral; 100-200 mm, Lenticular; Rough-ped fabric; Moist; Weak consistence; 0-2%, fine gravelly, 2-6mm, angular tabular, dispersed, Coal, coarse fragments; Few cutans, <10% of ped faces or walls coated, faint; Field pH 5.5 (pH meter); Few, very fine (0-1mm) roots; Few, fine (1-2mm) roots; Few, medium (2-5mm) roots; Few, coarse (>5mm) roots; Clear, Smooth change to -
B21	0.32 - 0.76 m	Reddish brown (2.5YR4/4-Moist); Biological mixing, 5YR32, 0-2% , Distinct; Light clay; Moderate grade of structure, 10-20 mm, Polyhedral; 100-200 mm, Prismatic; Smooth-ped fabric; Moist; Weak consistence; Few cutans, <10% of ped faces or walls coated, faint; Field pH 5 (pH meter); Few, very fine (0-1mm) roots; Few, fine (1-2mm) roots; Few, medium (2-5mm) roots; Few, coarse (>5mm) roots; Diffuse, Smooth change to -
B22	0.76 - 2.06 m	Red (2.5YR4/6-Moist); ; Clay loam; Massive grade of structure; Earthy fabric; Moist; Weak consistence; Field pH 5 (pH meter); Few, very fine (0-1mm) roots; Few, fine (1-2mm) roots; Diffuse change to -
B22	2.06 - 2.86 m	Red (2.5YR4/6-Moist); ; Clay loam; Earthy fabric; Moderately moist; Field pH 5 (pH meter); Diffuse change to -

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BC	2.86 - 3.36 m	Red (2.5YR4/8-Moist); ; Medium sandy clay loam; Massive grade of structure; Sandy (grains prominent) fabric; Moderately moist; 10-20%, coarse gravelly, 20-60mm, subrounded, undisturbed, Granodiorite, coarse fragments; Field pH 5.5 (pH meter);

Morphological Notes

A3	Strong structure due to faunal activity.
B22	Muscovite mica common in sand fraction.

Observation Notes

Situated within PGP.

Site Notes

PGP 8, BAGO S.F., COMPT 3

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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							%
0.02 - 0.17										
0.06 - 0.14	4.14C		5.96H	1.98	1.21	0.17	2.99J		12.31E	
	4.92A						0K			
0.21 - 0.31	4.24C		4.29H	2.61	1.16	0.11	2.6J		10.77E	
	5.15A						0K			
0.17 - 0.27	3.96C		1.9H	2.07	1.18	0.1	4.17J		9.42E	
	5A						0K			
0.3 - 0.5										
0.36 - 0.44	3.8C		0.53H	1.19	1.03	0.09	5.38J		8.22E	
	4.93A						0K			
0.7 - 0.9										
0.86 - 1.06	3.78C		0.07H	0.37	0.81	0.07	6.16J		7.47E	
	4.94A						0K			
2.36 - 2.56	3.81C		0.06H	0.26	0.4	0.08	3.69J		4.48E	
	4.85A						0K			
3.06 - 3.36	3.79C		0.05H	0.16	0.29	0.05	2.29J		2.85E	
	4.74A						0K			

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			%		
0.02 - 0.17							1.08					
							1.09					
							1.07					
0.06 - 0.14		12.6B		345.9B	0.26A		0.67	34.71				
0.21 - 0.31		3.62B		335.4B	0.15A		1.03	0.07				
0.17 - 0.27		2.24B		312.7B	0.1A		1.03	0.76				
0.3 - 0.5							1.23					
							1.22					
							1.18					
0.36 - 0.44		1.36B		225.6B	0.07A		1.29	0				
0.7 - 0.9							1.37					
							1.38					
							1.36					
0.86 - 1.06		0.31B		179.6B	0.03A		1.35	0.37				
2.36 - 2.56		0.24B		105.9B	0.02A			0.75				
3.06 - 3.36		0.33B		82.6B	0.01A			9.49				

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
m			g/g - m3/m3						mm/h	mm/h
0.02 - 0.17			0.44E	0.42E		0.29E	0.22F	0.18F	4869D	50B
			0.44E	0.41E		0.28E	0.22F	0.18F	1390D	50B
			0.43E	0.39E		0.29E	0.23F	0.18F	874D	64B
0.06 - 0.14										
0.21 - 0.31										
0.17 - 0.27										
0.3 - 0.5			0.46E	0.42E		0.3E	0.23F	0.2F	43D	13B
			0.45E	0.41E		0.29E	0.23F	0.2F	40D	11B
			0.44E	0.41E		0.29E	0.23F	0.2F		50B

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0.36 - 0.44							
0.7 - 0.9	0.45E	0.43E	0.32E	0.26F	0.23F	2D	2B
	0.44E	0.41E	0.32E	0.26F	0.23F	23D	6B
	0.44E	0.41E	0.3E	0.25F	0.22F	161D	12B
0.86 - 1.06							
2.36 - 2.56							
3.06 - 3.36							

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Laboratory Analyses Completed for this profile

13C1_AL	Citrate/dithionite-extractable iron, aluminium, Manganese and Silicon
13C1_FE	Citrate/dithionite-extractable iron, aluminium, Manganese and Silicon
15_NR	Sum of Ex. cations + Ex. acidity - Not recorded
15E1_AL	Exchangeable Al - by compulsive exchange, no pretreatment for soluble salts
15E1_CA	Exchangeable bases (Ca2+,Mg2+,Na+,K+) by compulsive exchange, no pretreatment for soluble
15E1_H	Exchangeable H - by compulsive exchange, no pretreatment for soluble salts
15E1_K	Exchangeable bases, CEC and AEC by compulsive exchange, no pretreatment for soluble salts
15E1_MG	Exchangeable bases, CEC and AEC by compulsive exchange, no pretreatment for soluble salts
15E1_NA	Exchangeable bases, CEC and AEC by compulsive exchange, no pretreatment for soluble salts
2A1	Air-dry moisture content
4A1	pH of 1:5 soil/water suspension
4B2	pH of 1:5 soil/0.01M calcium chloride extract - following Method 4A1
6B2	Total organic carbon - high frequency induction furnace, volumetric
7A2	Total nitrogen - semimicro Kjeldahl , automated colour
9A3	Total Phosphorus (ppm) - semimicro kjeldahl, automated colour
P10_GRAV	Gravel (%)
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)
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)
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
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)