Project Name: **BAGO-MARAGLE ESM**
Project Code: **BGM_ESM** **Site ID:** **1015** **Observation ID:** **1**
Agency Name: **CSIRO Division of Soils (ACT)**

Site Information

Desc. By:	P. Ryan	**Locality:**	
Date Desc.:	25/01/95	**Elevation:**	1157 metres
Map Ref.:	Sheet No. : 8526 DGPS	**Rainfall:**	No Data
Northing/Long.:	6056246 AMG zone: 55	**Runoff:**	Slow
Easting/Lat.:	604130 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:	14 %	**Aspect:**	225 degrees

Surface Soil Condition (dry): Firm

Erosion:

Soil Classification

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

Mapping Unit: N/A
Principal Profile Form: Um7.11

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; ;
A1	0.02 - 0.08 m	Dark reddish brown (5YR3/3-Moist); Mechanical, 2-10% , Faint; Clay loam; Moderate grade of structure, 2-5 mm, Granular; Rough-ped fabric; Moderately moist; Very weak consistence; Field pH 4.5 (pH meter); Many, very fine (0-1mm) roots; Few, fine (1-2mm) roots; Common, medium (2-5mm) roots; Abrupt, Smooth change to -
A2	0.08 - 0.2 m	Dark reddish brown (2.5YR3/3-Moist); Brown (7.5YR4/4-Dry); Biological mixing, 2-10% , Faint; Light clay; Weak grade of structure, 2-5 mm, Polyhedral; Rough-ped fabric; Moderately moist; Very firm consistence; 2-10%, fine gravelly, 2-6mm, angular tabular, dispersed, Coal, coarse fragments; Field pH 5 (pH meter); Few, very fine (0-1mm) roots; Clear, Smooth change to -
B21	0.2 - 0.4 m	Dark reddish brown (2.5YR3/4-Moist); Biological mixing, 2-10% , Faint; Light clay; Massive grade of structure; Earthy fabric; Moderately moist; Firm consistence; 2-10%, fine gravelly, 2-6mm, angular tabular, dispersed, Coal, coarse fragments; 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	0.4 - 0.72 m	Dark reddish brown (2.5YR3/4-Moist); ; Clay loam; Massive grade of structure; Earthy fabric; Moist; Weak consistence; 0-2%, coarse gravelly, 20-60mm, subrounded, coarse fragments; Field pH 5 (pH meter); Few, very fine (0-1mm) roots; Diffuse, Smooth change to -
B23	0.72 - 1.62 m	Reddish brown (2.5YR4/4-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; Few, medium (2-5mm) roots; Diffuse change to -
C	1.62 - 2.42 m	Yellowish brown (10YR5/4-Moist); ; Medium sandy clay loam; Sandy (grains prominent) fabric; Moderately moist; 2-10%, Granodiorite, coarse fragments; Field pH 5 (pH meter);

Morphological Notes

A1	This disturb horizon overlying a dense layer 2.
A2	Very dense layer of unknown origin. Logging traffic adjacent but not across pit. Several large vertical planar voids with roots indicate layer is not a recent feature.

Observation Notes

PGP is within selectively logged coupe. Large Acacia adjacent to pit may influence chemistry.

Site Notes

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PGP1, BAGO S.F., COMPT. 4

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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 - 0.1	3.74C		5.91H	1.93	1.07	0.12	7.4J		16.44E	
	4.59A						0K			
0.02 - 0.15										
0.08 - 0.18	3.96C		1.33H	1.18	1.08	0.1	4.23J		7.9E	
	4.99A						0K			
0.2 - 0.4										
0.32 - 0.4	3.79C		0.36H	0.91	0.99	0.07	5.94J		8.28E	
	4.83A						0K			
0.47 - 0.57	3.82C		0.22H	0.83	1.05	0.06	5.99J		8.14E	
	4.94A						0K			
0.5 - 0.7										
0.82 - 0.92	3.83C		0.09H	0.42	1.05	0.06	5.31J		6.93E	
	5.03A						0K			
0.9 - 1.1										
2.22 - 2.42	3.79C		0.04H	0.15	0.53	0.06	4.26J		5.05E	
	4.81A						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 - 0.1		10.09B		427.6B	0.33A			14.32				
0.02 - 0.15							1.06					
							1.00					
							0.92					
0.08 - 0.18		2.67B		318.9B	0.14A		1.40	4.12				
0.2 - 0.4							1.00					
							1.08					
							1.12					
0.32 - 0.4		1.44B		242B	0.08A		1.08	0.5				
0.47 - 0.57		1.45B		259.4B	0.06A		1.23	0.54				
0.5 - 0.7							1.19					
							1.12					
							1.12					
0.82 - 0.92		0.23B		189.4B	0.03A		1.23	1.01				
0.9 - 1.1							1.35					
							1.33					
							1.38					
2.22 - 2.42		0.14B		117.3B	0.02A			9.41				

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 - 0.1										
0.02 - 0.15			0.44E	0.41E		0.33E	0.25F	0.2F	1563D	197B
			0.4E	0.38E		0.29E	0.22F	0.18F	3207D	241B
			0.38E	0.37E		0.27E	0.23F	0.18F	2060D	300B
0.08 - 0.18										
0.2 - 0.4			0.46E	0.41E		0.27E	0.2F	0.17F	2221D	124B
			0.42E	0.38E		0.27E	0.22F	0.19F	829D	153B
			0.43E	0.4E		0.29E	0.23F	0.2F	784D	128B

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0.32 - 0.4							
0.47 - 0.57							
0.5 - 0.7	0.43E	0.4E	0.29E	0.23F	0.21F	361D	48B
	0.42E	0.38E	0.27E	0.22F	0.19F	4626D	67B
	0.41E	0.37E	0.28E	0.22F	0.2F	4852D	72B
0.82 - 0.92							
0.9 - 1.1	0.43E	0.41E	0.32E	0.27F	0.24F	803D	7B
	0.45E	0.42E	0.33E	0.27F	0.24F	366D	6B
	0.43E	0.4E	0.34E	0.27F	0.25F		10B
2.22 - 2.42							

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Laboratory Analyses Completed for this profile

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)