**Project Name:** **BAGO-MARAGLE ESM**
**Project Code:** **BGM_ESM** **Site ID:** **1019** **Observation ID:** **1**
**Agency Name:** **CSIRO Division of Soils (ACT)**

## Site Information

**Desc. By:** P. Ryan
**Date Desc.:** 03/04/95
**Map Ref.:** Sheet No. : 8526 DGPS
**Northing/Long.:** 6051007 AMG zone: 55
**Easting/Lat.:** 601685 Datum: AGD66
**Locality:**
**Elevation:** 1165 metres
**Rainfall:** No Data
**Runoff:** Very slow
**Drainage:** Well drained

## Geology

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

## Land Form

**Rel/Slope Class:** No Data
**Morph. Type:** Crest
**Elem. Type:** Hillcrest
**Slope:** 8 %
**Pattern Type:** No Data
**Relief:** No Data
**Slope Category:** No Data
**Aspect:** 0 degrees

## Surface Soil Condition (dry): Firm

## Erosion:

## Soil Classification

**Australian Soil Classification:**
Acidic Magnesic Red Kandosol Medium Non-gravelly Clay-loamy Clayey Very deep

**ASC Confidence:**
All necessary analytical data are available.

**Mapping Unit:** N/A
**Principal Profile Form:** Gn2.11
**Great Soil Group:** Red earth

## Site Disturbance: No effective disturbance. Natural

## Vegetation:

## Surface Coarse Fragments:

## Profile Morphology

| | | |
|---|---|---|
| O1 | 0 - 0.01 m | Organic Layer; ; |
| A1 | 0.01 - 0.14 m | Dark reddish brown (5YR3/3-Moist); Biological mixing, 2-10% , Faint; Clay loam; Moderate grade of structure, 2-5 mm, Polyhedral; 100-200 mm, Prismatic; Rough-ped fabric; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Common (1-5 per 100mm2) Fine (1-2mm) macropores, Common (1-5 per 100mm2) Medium (2-5mm) macropores, Dry; Very firm consistence; 0-2%, fine gravelly, 2-6mm, angular tabular, dispersed, Coal, coarse fragments; Field pH 5.5 (pH meter); Common, very fine (0-1mm) roots; Few, fine (1-2mm) roots; Few, medium (2-5mm) roots; Few, coarse (>5mm) roots; Clear, Irregular change to - |
| B1 | 0.14 - 0.28 m | Dark reddish brown (2.5YR3/4-Moist); Biological mixing, 10-20% , Faint; Clay loam; Moderate grade of structure, 5-10 mm, Polyhedral; 100-200 mm, Lenticular; Rough-ped fabric; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Few (<1 per 100mm2) Fine (1-2mm) macropores, Common (1-5 per 100mm2) Medium (2-5mm) macropores, Dry; Firm consistence; 0-2%, fine gravelly, 2-6mm, angular tabular, dispersed, Coal, coarse fragments; Field pH 5.5 (pH meter); Few, very fine (0-1mm) roots; Few, fine (1-2mm) roots; Few, medium (2-5mm) roots; Clear, Wavy change to - |
| B21 | 0.28 - 0.61 m | Dark reddish brown (2.5YR3/4-Moist); Biological mixing, 2-10% , Distinct; Light clay; Weak grade of structure, 10-20 mm, Subangular blocky; Smooth-ped fabric; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Few (<1 per 100mm2) Fine (1-2mm) macropores, Many (>5 per 100mm2) Medium (2-5mm) macropores, Common (1-5 per 100mm2) Coarse (>5mm) macropores, Dry; Firm 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; Common, medium (2-5mm) roots; Common, coarse (>5mm) roots; Diffuse, Smooth change to - |
| B22 | 0.61 - 1.21 m | Dark red (2.5YR3/6-Moist); ; Clay loam, sandy; Massive grade of structure; Earthy fabric; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Firm consistence; 0-2%, fine gravelly, 2-6mm, subangular, dispersed, Quartz, coarse fragments; 0-2%, coarse gravelly, 20-60mm, subrounded, dispersed, Granodiorite, coarse fragments; Field pH 5.5 (pH meter); Few, very fine (0-1mm) roots; Clear change to - |
| B31 | 1.21 - 2.21 m | Brown (7.5YR4/4-Moist); ; Coarse sandy loam; Massive grade of structure; Earthy fabric; Moderately moist; Field pH 5.5 (pH meter); Gradual change to - |

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| | | |
|---|---|---|
| B32 | 2.21 - 2.51 m | Yellowish brown (10YR5/4-Moist); ; Loamy coarse sand; Massive grade of structure; Sandy (grains prominent) fabric; Moderately moist; Field pH 6 (pH meter); Gradual change to - |
| B33 | 2.51 - 2.81 m | Strong brown (7.5YR5/6-Moist); ; Coarse sandy loam; Sandy (grains prominent) fabric; Moderately moist; Field pH 5.5 (pH meter); Gradual change to - |
| C | 2.81 - 4.01 m | Brown (10YR5/3-Moist); ; Clayey coarse sand; Sandy (grains prominent) fabric; Moderately moist; Field pH 5.5 (pH meter); |

## Morphological Notes

| | |
|---|---|
| A1 | Dry pit face has lattice of cracks. |
| B1 | Cracks as above. |
| B21 | Cracks as above. |
| B22 | Cracks as above. |
| B31 | Cracks as above. |
| B32 | Cracks as above. Pale layer probably weathered boulder. |
| B33 | Similar colour to layer 5. |

## Observation Notes

PGP centre 3 m north of the pit.

## Site Notes

PGP09, BAGO S.F., COMPT 45

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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 | | | | | | | % |
| 0.01 - 0.09 | 3.96C<br>4.93A | | 0.88H | 1.15 | 1.22 | 0.03 | 6.74J<br>0K | | 10.02E | |
| 0.16 - 0.26 | 4.03C<br>5.06A | | 0.41H | 1.4 | 0.81 | 0.03 | 5.47J<br>0K | | 8.12E | |
| 0.31 - 0.39 | 4.01C<br>5.14A | | 0.15H | 1.06 | 0.91 | 0.04 | 5.3J<br>0K | | 7.48E | |
| 0.71 - 0.91 | 4C<br>5.2A | | 0.03H | 0.35 | 0.67 | 0.01 | 4.36J<br>0K | | 5.41E | |
| 1.61 - 1.81 | 4.19C<br>5.34A | | 0.09H | 0.1 | 0.3 | 0.03 | 1.56J<br>0K | | 2.08E | |
| 3.31 - 3.51 | 4.21C<br>5.43A | | 0.05H | 0.06 | 0.26 | 0.03 | 0.9J<br>0K | | 1.29E | |

| 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 | | | % | | |
| 0.01 - 0.09 | | 4.44B | | 348.5B | 0.22A | | 1.05 | 39.64 | | | | |
| 0.16 - 0.26 | | 1.25B | | 248.7B | 0.09A | | 1.26 | 19.47 | | | | |
| 0.31 - 0.39 | | 0.77B | | 222.4B | 0.06A | | 1.34 | 6.16 | | | | |
| 0.71 - 0.91 | | 0.22B | | 204.6B | 0.03A | | 1.43 | 5.52 | | | | |
| 1.61 - 1.81 | | 0.1B | | 315.2B | 0.01A | | | 3.42 | | | | |
| 3.31 - 3.51 | | 0.04B | | 245.1B | 0.01A | | | 5.57 | | | | |

| 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 |
| 0.01 - 0.09 | | | | | | | | | |
| 0.16 - 0.26 | | | | | | | | | |
| 0.31 - 0.39 | | | | | | | | | |
| 0.71 - 0.91 | | | | | | | | | |
| 1.61 - 1.81 | | | | | | | | | |
| 3.31 - 3.51 | | | | | | | | | |

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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 |