

**Project Name:** Balonne-Maranoa Soil Survey and Soil Moisture Profiles  
**Project Code:** B-M **Site ID:** SM21 **Observation ID:** 1  
**Agency Name:** CSIRO Division of Soils (ACT)

#### Site Information

<b>Desc. By:</b>	Gunn, RH	<b>Locality:</b>	Approximately 15 miles north of Moruen, 2 miles north Moyallen turnoff.
<b>Date Desc.:</b>	11/08/71	<b>Elevation:</b>	No Data
<b>Map Ref.:</b>	Sheet No. : SG55-11 1:100000	<b>Rainfall:</b>	550
<b>Northing/Long.:</b>	147.0964109	<b>Runoff:</b>	Moderately rapid
<b>Easting/Lat.:</b>	-26.26833999	<b>Drainage:</b>	Moderately well drained

#### Geology

<b>Exposure Type:</b>	Auger boring	<b>Conf. Sub. is Parent. Mat.:</b>	No Data
<b>Geol. Ref.:</b>	No Data	<b>Substrate Material:</b>	Shale

#### Land Form

<b>Rel/Slope Class:</b>	Undulating plains <9m 3-10%	<b>Pattern Type:</b>	Plain
<b>Morph. Type:</b>	Mid-slope	<b>Relief:</b>	No Data
<b>Elem. Type:</b>	Hillslope	<b>Slope Category:</b>	Gently inclined
<b>Slope:</b>	1.5 %	<b>Aspect:</b>	No Data

**Surface Soil Condition (dry):** Cracking

#### Erosion:

#### Soil Classification

<b>Australian Soil Classification:</b>		<b>Mapping Unit:</b>	N/A
Red Vertosol		<b>Principal Profile Form:</b>	Ug5.37
<b>ASC Confidence:</b>	Analytical data are incomplete but reasonable confidence.	<b>Great Soil Group:</b>	Red clay

#### Site Disturbance:

#### Vegetation:

Mid Strata - Shrub, , . \*Species includes - Eremophila mitchellii, Astrebla species, Bassia species  
Tall Strata - Shrub, 3.01-6m, Very sparse. \*Species includes - Acacia harpophylla, Eucalyptus thozetiana

**Surface Coarse Fragments:** 0-2%, fine gravelly, 2-6mm, angular, Ferricrete

#### Profile Morphology

A	0 - 0.2 m	Dark reddish brown (5YR3/4-Moist); , 0-0% ; Heavy clay; Weak grade of structure, <2 mm, Platy; Smooth-ped fabric; Weak consistence; Slightly plastic; Slightly sticky; 0-2%, fine gravelly, 2-6mm, angular, coarse fragments; Field pH 6.5 (pH meter);
B21	0.2 - 0.45 m	Dark reddish brown (5YR3/4-Moist); , 0-0% ; Heavy clay; , Subangular blocky; Smooth-ped fabric; Firm consistence; Field pH 7 (pH meter);
B22	0.45 - 0.9 m	Yellowish red (5YR3/6-Moist); , 0-0% ; Heavy clay; , Subangular blocky; Smooth-ped fabric; Very firm consistence; Few (2 - 10 %), Gypseous, , ; Field pH 6.7 (pH meter); Field pH 6 (pH meter);
B3	0.9 - 1.05 m	Reddish brown (5YR4/3-Moist); , 0-0% ; Massive grade of structure; Smooth-ped fabric; Firm consistence; Few (2 - 10 %), Gypseous, , ; Field pH 5 (pH meter);

#### Morphological Notes

A	Weak platy, earthy crust on surface 2-3 mm, consistence of which is soft and slightly sticky when moist.
B3	Fragments of grey shale.

#### Observation Notes

Parent material: weathered shale. Erosion: none at site, deep gully nearby.

#### Site Notes

Soil Family: Cb. Land Unit 36 (935 km2). Vegetation: Brigalow, shrub woodland. Midslope below low hill (in saddle).

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**Laboratory Test Results:**

Depth	pH	1:5 EC	Exchangeable Cations			Exchangeable	CEC	ECEC	ESP
m		dS/m	Ca	Mg	K	Na	Acidity		%
						Cmol (+)/kg			
0 - 0.2	6.7A								
0.2 - 0.45			17.1D	17	0.68	1.34			
0.45 - 0.9	6.4A								
0.9 - 1.05	5A		16D	16.7	0.79	1.8			

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**Laboratory Analyses Completed for this profile**

14B1	Electrical conductivity/SE
15B2_CA	Exchangeable bases (Ca <sup>2+</sup> ,Mg <sup>2+</sup> ,Na <sup>+</sup> ,K <sup>+</sup> ) - 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
4A1	pH of 1:5 soil/water suspension
P10_GRAV	Gravel (%)
P10_HYD_C	Clay (%) - Hydrometer Method
P10_HYD_CS	Coarse Sand (%) - Hydrometer Method
P10_HYD_FS	Fine Sand (%) - Hydrometer Method
P10_HYD_Z	Silt (%) - Hydrometer Method
P3A1_CLOD	Bulk density g/cm <sup>3</sup> - Clods at 0.1 Bar moisture content (McIntyre & Stirk, 1954, Aust. J. Agric. Res. 5:291-6)
P3B1VL_15	15 BAR Moisture m <sup>3</sup> /m <sup>3</sup> - Volumetric using <2mm sample on pressure plate
P3B2VL_03	0.3 BAR Moisture m <sup>3</sup> /m <sup>3</sup> - Volumetric using disturbed sample on pressure plate
XRD_C_II	Illite - X-Ray Diffraction
XRD_C_Is	Interstratified clay minerals - X-Ray Diffraction
XRD_C_Ka	Kaolin - X-Ray Diffraction
XRD_C_Mm	Montmorillonite - X-Ray Diffraction
XRD_C_Qz	Quartz - X-Ray Diffraction