SHALLOW CALCAREOUS LOAM
(scalded and non scalded)

General Description: *Calcareous loam to clay loam with increasing carbonate rubble at depth, over highly weathered basement rock within a metre*

Landform: Low gently sloping rises lying between steeper rocky hills and outwash plains

Substrate: Basement siltstone or shale with soft carbonate in fissures

Vegetation: Acacia victoriae / Maireana brevifolia shrubland

Type Site: Site No.: CU044

1:50,000 sheet:	6533-2 (Moockra)	Hundred:	Yanyarrie
Annual rainfall:	300 mm	Sampling date:	02/11/94
Landform:	Lower slope of a gently undulating rise, 2% slope		
Surface:	Firm with sporadic scalding and up to 10% siltstone fragments CU044A is not scalded, CU044B is scalded		

Summary of Properties

Drainage Well drained. The soil is porous and overlies strongly cleaved rocks.

Fertility Natural fertility is moderate and relies on adequate surface organic carbon levels, because of the relatively low clay content of the soils. On scalded sites, organic carbon levels are low. Fertility is further reduced by high carbonate contents, especially on scalded sites.

pH Alkaline at the surface, strongly alkaline with depth.

Rooting depth 80 cm in covered soil; only dead roots (to 18 cm) in scalded soil.

Barriers to root growth

Physical: Shallow depth to rock is the main barrier in these soils

Chemical: High pH and associated nutrient unavailability is the main problem in natural soils. In scalded soils, salt levels are up to 100 times higher in the surface and insoluble sodium is significantly higher.

Water holding capacity 80 - 100 mm in the root zone, depending on rubble content and depth to rock.

Seedling emergence Good (natural soil), very poor (scalded soil), due to very high surface salt levels.

Erosion Potential

Water: Moderately low (natural soil), moderately high (scalded soil)

Wind: Moderately low, but pulverization of bare scalded surface leads to soil movement

Soil Description: **CU044A (Non-scalded site)**

Depth (cm)	*Description*
0-10	Dark reddish brown highly calcareous loam with moderate blocky structure and 2-10% carbonate nodules. Abrupt to:
10-18	Reddish brown very highly calcareous weakly structured clay loam with 20-50% rubbly Class III B carbonate. Abrupt to:
18-28	As above but with visible soft carbonate segregations. Clear to:
28-50	Reddish brown very highly calcareous clay loam with decreasing carbonate nodules. Diffuse to:
50-80	Light brown very highly calcareous clay loam with 10-20% carbonate nodules and 20-50% soft calcareous segregations. Gradual to:
80-160	Soft highly calcareous weathering siltstone.

Minor siltstone gravel throughout

Classification: Endohypersodic, Paralithic, Supracalcic Calcarosol; medium, slightly gravelly, loamy / clay loamy, moderate.

Laboratory Data

Depth cm	pH H_2O	pH $CaC1_2$	CO_3 %	EC1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	SO_4-S mg/kg	Boron mg/kg	Trace Elements mg/kg (DTPA)			CEC cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP	SAR	Cl mg/kg
											Cu	Mn	Zn		Ca	Mg	Na	K			
0-10	8.5	8.1	4	0.11	0.78	1.2	-	-	<1	1.6	-	-	-	16.9	14.2	2.5	0.1	1.1	0.3	0.4	40
10-18	8.5	8.0	17	0.11	0.47	1.0	-	-	<1	1.4	-	-	-	15.8	17.9	2.9	0.1	0.6	0.4	0.4	23
18-28	8.5	8.0	18	0.23	0.83	0.8	-	-	<1	1.1	-	-	-	12.5	13.8	2.8	0.1	0.3	0.9	0.9	74
28-50	9.3	8.2	37	1.01	5.08	0.5	-	-	14	2.2	-	-	-	8.3	8.7	2.0	0.8	0.2	9.9	7.9	637
50-80	9.5	8.4	32	1.10	8.26	0.2	-	-	311	11.0	-	-	-	5.8	6.0	2.1	1.5	0.2	25.6	17.5	845
80-160	9.9	8.6	25	0.70	6.92	0.2	-	-	326	3.5	-	-	-	6.8	5.7	2.4	1.2	0.1	17.1	15.6	641

Note: CEC (cation exchange capacity) is a measure of the soil's capacity to store and release major nutrient elements.
ESP (exchangeable sodium percentage) is derived by dividing the exchangeable sodium value by the CEC.
SAR is sodium adsorption ratio measured on the saturation extract

Soil Description: **CU044B (Scalded site)**

Depth (cm)	*Description*
0-10	Yellowish red very highly calcareous, weakly structured clay loam with 2-10% carbonate nodules. Clear to:
10-18	Brown very highly calcareous weakly structured clay loam with 20-50% Class III B carbonate nodules. Clear to:
18-45	Brown very highly calcareous weakly structured clay loam with 20-50% soft carbonate segregations and 2-10% carbonate nodules. Gradual to:
45-80	As for 18-45 cm layer. Gradual to:
80-130	Soft highly calcareous weathering siltstone.

Minor siltstone gravel throughout.

Classification: Hypervescent, Paralithic, Supracalcic Calcarosol; medium, slightly gravelly, clay loamy / clay loamy, moderate.

Laboratory Data

Depth cm	pH H_2O	pH $CaCl_2$	CO_3 %	EC1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	SO_4-S mg/kg	Boron mg/kg	Trace Elements mg/kg (DTPA)			CEC cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP	SAR	Cl mg/kg
											Cu	Mn	Zn		Ca	Mg	Na	K			
0-10	8.2	8.1	12	5.64	80.6	0.30	-	-	238	<1	-	-	-	15.5	12.8	3.7	1.0	0.6	6.4	13	13557
10-18	8.2	8.0	17	4.14	51.7	0.56	-	-	560	<1	-	-	-	12.4	9.8	2.8	1.2	0.4	9.3	11.1	8303
18-45	8.4	8.1	52	3.20	33.9	0.36	-	-	363	1.7	-	-	-	7.6	3.0	1.0	0.4	0.1	4.8	10.7	4949
45-80	8.5	8.4	38	1.32	20.5	0.17	-	-	113	6.5	-	-	-	7.0	4.9	2.4	1.2	0.2	17.4	16.6	2446
80-130	9.9	8.7	25	0.80	7.55	0.15	-	-	55	4.2	-	-	-	5.5	3.9	2.0	0.9	0.1	16.5	19.6	882

Note: CEC (cation exchange capacity) is a measure of the soil's capacity to store and release major nutrient elements. ESP (exchangeable sodium percentage) is derived by dividing the exchangeable sodium value by the CEC. SAR is sodium adsorption ratio measured on the saturation extract.