

## RUBBLY CALCAREOUS SANDY LOAM

**General Description:** *Calcareous sandy loam becoming more clayey and calcareous with depth, grading to weathering basement rock within 100 cm.*

**Landform:** Undulating low hills.

**Substrate:** Calcareous fine grained tillite.

**Vegetation:** Bluebush



**Type Site:** Site No.: CM092

1:50,000 sheet: 6831-4

Hundred:

Out of Hundreds

Annual rainfall: 225 mm

Sampling date:

Sept. 2001

Landform: Lower slope of 4%

Surface: Firm with 2-10% calcrete and quartz fragments

### Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-2	Dark reddish brown friable massive moderately calcareous sandy loam with 2-10% calcrete and 2-10% quartz fragments (6-20 mm). Abrupt to:
2-6	Dark reddish brown friable massive highly calcareous light sandy clay loam with 20-50% calcrete fragments (20-60 mm) and 10-20% siltstone gravel (6-20 mm). Abrupt to:
6-16	Reddish brown friable massive highly calcareous light sandy clay loam with 20-50% calcrete fragments (20-60 mm) and 10-20% siltstone gravel (6-20 mm). Clear to:
16-36	Yellowish red friable massive very highly calcareous light sandy clay loam with 20-50% siltstone (20-60 mm) and 20-50% calcrete (20-60 mm) fragments. Diffuse to:
36-80	Reddish yellow friable massive very highly calcareous sandy loam with more than 50% siltstone fragments (60-200 mm).
80-110	Weathering siltstone with up to 10% pockets of pink friable massive carbonate with sandy clay loam texture.



**Note:** Coarse fragments are gypsum and carbonate coated.

**Classification:** Ceteric, Paralithic, Supracalcic Calcarosol; thin, gravelly, loamy / clay loamy/ moderate

## Summary of Properties

<b>Drainage</b>	Rapidly drained - the soil is never wet for more than an hour or so.
<b>Fertility</b>	Inherent fertility is moderate as indicated by the exchangeable cation data. Levels of all tested elements (including phosphate) are satisfactory, even by agricultural land standards. There is no explanation for the high phosphate concentrations, although they are partly due to the shallow sampling depths.
<b>pH</b>	Alkaline at the surface, strongly alkaline at depth.
<b>Rooting depth</b>	80 cm in pit, but most are in the upper 36 cm.
<b>Barriers to root growth</b>	
<b>Physical:</b>	The subsoil stone and underlying hard rock are the only physical limitations.
<b>Chemical:</b>	Salt levels are high from 36 cm, and very high from 80 cm. This is due mainly to the very high carbonate concentrations, and gypsum.
<b>Water holding capacity</b>	Approximately 35 mm in the rootzone (due to the very high stone content).
<b>Seedling emergence:</b>	Satisfactory
<b>Erosion Potential</b>	
<b>Water:</b>	Moderate (runoff water from upslope increases potential on lower slopes).
<b>Wind:</b>	Moderately low.

## Laboratory Data

Depth cm	pH H <sub>2</sub> O	pH CaCl <sub>2</sub>	CO <sub>3</sub> %	EC1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	SO <sub>4</sub> -S mg/kg	Boron mg/kg	Trace Elements mg/kg (DTPA)				CEC cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
											Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
0-2	8.3	7.4	7.5	0.08	0.42	1.22	34	417	1.6	1.2	1.9	29	na	1.8	13.4	10.6	1.66	0.16	1.02	1.2
2-6	8.4	7.4	2.3	0.08	0.44	0.96	25	414	1.8	0.8	2.0	6	69.4	1.0	14.1	11.1	1.84	0.09	1.03	0.6
6-16	8.8	7.6	20	-	0.59	0.96	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16-36	9.0	7.8	45	-	1.69	0.89	-	-	-	-	-	-	-	-	-	-	-	-	-	-
36-80	9.2	8.5	85	-	8.33	0.48	-	-	-	-	-	-	-	-	-	-	-	-	-	-
80-110	9.2	8.7	100	-	19.3	0.26	-	-	-	-	-	-	-	-	-	-	-	-	-	-

**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.