

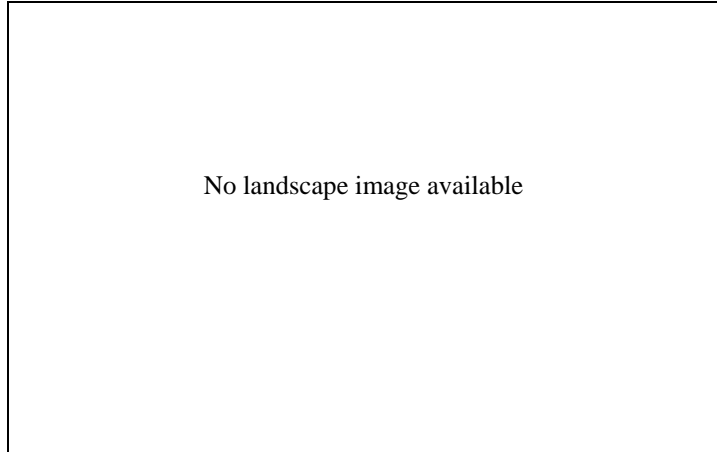
THICK SAND OVER COARSELY STRUCTURED CLAY (Karkoo soil)

General Description: *Thick bleached sand abruptly overlying a coarsely structured brown or yellow mottled clayey subsoil, calcareous with depth*

Landform: Very gently undulating plain.

Substrate: Clayey Tertiary sediments.

Vegetation:



Type Site: Site No.: EL008

1:50,000 sheet:	6029-4 (Yeelanna)	Hundred:	Shannon
Annual rainfall:	400 mm	Sampling date:	26/03/92
Landform:	Lower slope of gently undulating plain		
Surface:	Soft with 10-20% calcrete stone (20-60 mm)		

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-15	Greyish brown loose loamy sand. Diffuse to:
15-40	Very pale brown (bleached) loose fine sand. Abrupt to:
40-90	Brownish yellow and red very hard medium clay with strong coarse prismatic breaking to fine angular blocky structure. Sharp to:
90-200	Pale yellow and orange very hard medium clay with moderate fine angular blocky structure and more than 50% fine carbonate segregations.



Classification: Sodic, Hypercalcic, Yellow Chromosol; thick, gravelly, sandy / clayey, very deep

Summary of Properties

Drainage	Imperfectly drained. Water perches on the dense clayey subsoil for periods of up to several week following heavy or prolonged rainfall.
Fertility	Inherent fertility is low as indicated by the exchangeable cation data. Although nutrient retention capacity of the clayey subsoil is high, the 40 cm of surface soil above has very low capacity due to low clay and organic matter contents. Phosphorus applications are required regularly, and data suggests there is phosphate leaching.
pH	Neutral at the surface, strongly alkaline with depth.
Rooting depth	150 cm in pit, but below 90 cm, roots are confined to clay pockets.
Barriers to root growth	
Physical:	The dense clayey subsoil prevents uniform root distribution, so water use efficiency is lost.
Chemical:	High pH from 90 cm inhibits deeper root growth.
Water holding capacity	Approximately 90 mm in root zone.
Seedling emergence:	Satisfactory, although water repellence is a problem in dry seasons.
Workability:	Soft surface is easily worked.
Erosion Potential	
Water:	Moderately low. Slope is gentle, but soil is highly erodible.
Wind:	Moderate due to loose sandy low organic matter surface.

Laboratory Data

Depth cm	pH H ₂ O	pH CaCl ₂	CO ₃ %	EC 1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	Cl mg/kg	SO ₄ -S mg/kg	Boron mg/kg	Trace Elements mg/kg (EDTA)				Sum cations cmol (+)/kg	Exchangeable Cations cmol(+)/kg				Est. ESP
												Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
0-15	7.0	6.5	0	0.20	1.00	0.52	15	-	60	4	0.6	0.41	7.9	1.41	0.94	2.0	3.8	0.5	0.10	0.20	na
15-40	7.4	7.0	1	0.20	0.85	-	22	-	141	2	0.3	0.16	14	1.27	0.35	1.2	0.7	0.1	0.06	0.14	na
40-90	7.9	7.4	8	0.52	2.02	-	-	-	290	8	4.4	0.54	5.1	0.86	0.48	25.1	14.8	7.6	1.26	2.87	5.0
90-200 *	9.4	8.5	3	0.56	1.83	-	-	-	310	15	3.5	0.79	9.9	0.99	0.58	17.4	9.4	5.2	1.37	1.88	7.9
90-200 +	9.6	8.6	50	0.55	1.41	-	-	-	-	-	-	0.79	9.9	1.41	0.94	-	-	-	-	-	-

Note: 90-200 * Clay fraction of layer
 90-200 + Carbonate fraction of layer.

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