CLV   Cleve Land System

Area: 417.0 km²

Landscape: Very gently inclined outwash fan formed on alluvial clayey sands and sandy clays with gravel seams derived from the Cleve - Mangalo Hills. Basement schists, gneisses and quartzites (outliers of the main range) outcrop in places on the fans. Most of the landscape is blanketed by windblown highly calcareous silty sand of the Woorinen Formation. This is commonly more than a metre thick. There are minor accumulations of Molineaux Sand as low sandhills.

Annual rainfall: 295 – 390 mm average

Main soils: Wiabuna (sandy loam) - **A4a** (Regolithic, Hypercalcic / Lithocalcic Calcarosol)
  Calcareous sandy loam becoming more clayey and calcareous with depth, grading to fine or rubbly carbonate overlying alluvium or wind blown sediments.
Wiabuna (clay loam) - **A4b** (Regolithic, Hypercalcic / Lithocalcic Calcarosol)
  Calcareous clay loam grading to clay with fine or rubbly carbonate, overlying alluvium or windblown sediments.
Cleve - **D3** (Hypercalcic, Red Sodosol)
  Thin to medium thickness hard loamy sand to sandy clay loam over a red clay with coarse prismatic structure, highly calcareous from about 25 cm, grading to alluvial clay.
Cleve (shallow) - **D1** (Calcic, Red Chromosol)
  Thin to medium thickness gravelly sandy loam to clay loam over a red well structured clay, calcareous with depth, grading to weathering metamorphic rock within 50 cm.

Minor soils: Calcareous loam (shallow) - **A2** (Paralithic, Hypercalcic / Lithocalcic Calcarosol)
  Calcareous sandy loam to sandy clay loam grading to a highly calcareous clay loam over Class III A, B or C carbonate merging with weathering rock.
Deep calcareous sandy loam - **A3** (Regolithic, Calcic Calcarosol)
  Calcareous sandy loam grading to a highly calcareous sandy clay loam over alluvium.
Wiabuna (shallow) - **B2/A4** (Petrocalcic, Lithocalcic Calcarosol)
  Calcareous sandy clay loam over carbonate rubble grading to sheet calcrete.
Wharminda - **G4** (Calcic, Brown Sodosol)
  Thin sand to light sandy loam over a brown or red coarsely structured clay, calcareous with depth, grading to highly calcareous windblown deposits.
Moornaba - **H2** (Calcareous, Arenic, Yellow-Orthic / Red-Orthic Tenosol)
  Very thick red to brown sand, becoming weakly calcareous and often grading to an orange clayey sand with depth, overlying variable carbonate (fine to rubbly, occasionally sheet).
Skeletal soil - **L1** (Lithic / Petroferric, Leptic Tenosol / Rudosol)
  Variable gravelly loamy sand to sandy clay loam over basement rock or massive ironstone at depths usually less than 50 cm.
Pooraka - **M1a** (Calcareous / Basic, Regolithic, Red-Orthic Tenosol)
  Thick gravelly loamy sand to light sandy clay loam with slight clay increase at depth, grading to alluvial gravel, clayey sand and sandy clay.
Uniform alluvial soil - **M1b** (Calcareous, Regolithic, Red-Orthic Tenosol)
  Very thick brown loamy sand to sandy loam, continuing below 100 cm.
Gradational alluvial soil - **M4** (Calcic, Red Kandosol / Dermosol)
  Medium to thick sandy loam grading to a red sandy clay loam to clay, calcareous with depth.
Saline alluvial soil - **M4/N2** (Calcic, Red Dermosol / Kandosol)
  Thick sandy loam over a red clay, calcareous with depth. Saline throughout.

Summary: The majority of the land comprises very gentle slopes with deep moderately fertile sandy loam soils. These are generally productive, despite a range of slight limitations including restricted waterholding capacity, erosion potential (wind and water), salinity and boron toxicity. The only other significant landscape feature is a limited area of basement rock rises, with similar although shallower soils.

Soil Landscape Unit summary: 11 Soil Landscape Units (SLUs) mapped in the Cleve Land System:

SLU	% of area	Component	Main soils	Prop#	Notes
AKB	0.1	Rocky rises	Skeletal	D	Shallow soils and rock outcrop - non arable.
DKB	15.1	Very gently undulating rises	Shallow Cleve	V	Shallow sandy loam soil with moderate fertility but restricted water holding capacity. Slight (**DKB**) to moderate (**DKC**) water erosion potential. Sporadic salinity.
			Calc loam (shallow)	L	
DKC	0.8	Gently undulating rises	Shallow Cleve	V	
			Calc loam (shallow)	L	
DZB	0.5	Very gently undulating rises	Shallow Cleve	E	Complex of **DKB** and **JGB**.
			Calc loam (shallow)	L	
		Outwash fans	Cleve / Pooraka	E	
JGB	2.9	Very gentle slopes	Cleve / Pooraka	D	Deep moderately fertile sandy loam soils. Slight water and wind erosion potential.
KNA	3.9	Flats	Wiabuna (sandy loam and clay loam)	E	Deep moderately fertile sandy loam to clay loam soils, some calcareous and some non calcareous. Infertile sandy soils on sporadic low dunes. All soils are slightly susceptible to wind erosion. Water erosion potential is low (**KNA**) to slight (**KNB** and **KNE**). Sporadic magnesia patches throughout and minor saline seepage in KNE. Subsoil boron toxicity is common.
			Cleve	E	
			Wharminda	L	
			Gradational alluvial	L	
			Deep calcareous sandy loam	L	
KNB	74.7	Very gentle slopes with occasional low sandhills	Wiabuna (sandy loam and clay loam)	E	
			Cleve	E	
			Wharminda	L	
			Gradational alluvial	L	
			Deep calcareous sandy loam	L	
KNE	0.2	Drainage depressions	Wiabuna (sandy loam and clay loam)	E	
			Cleve	E	
			Wharminda	L	
			Gradational alluvial	L	
			Deep calcareous sandy loam	L	
QaA	0.8	Stony benches	Shallow Wiabuna	V	Shallow stony calcareous sandy loam with limited waterholding capacity, and infertile, wind erosion prone sands.
		Low sandhills	Moornaba	L	
XDK	0.7	Creek flats	Gradational / uniform alluvial	D	Alluvial soils deep and fertile with high productive potential. Salt affected areas suitable for revegetation with salt tolerant species. Risk of erosion and flooding.
XDN	0.3	Creek flats with 2-10% saline seepage patches	Gradational / uniform alluvial	D	
			Saline alluvial	M	

\# PROPORTION codes assigned to Soil Landscape Unit (SLU) components:

D	Dominant in extent (>90% of SLU)		C	Common in extent (20–30% of SLU)
V	Very extensive in extent (60–90% of SLU)		L	Limited in extent (10–20% of SLU)
E	Extensive in extent (30–60% of SLU)		M	Minor in extent (<10% of SLU)

Further information: DEWNR Soil and Land Program

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