

MDG Murdinga Land System

Area: 531.9 km²

Landscape: Plain covered by a thick mantle of highly calcareous silty sands of the Woorinen Formation or hard calcrete in approximately equal proportions. Overlying the plain are dunefields of Molineaux Sand, forming parallel low sand ridges which cover about 15% of the land.

Annual rainfall: 365 – 390 mm average

Main soils:

Wiabuna (shallow) - B2a (Petrocalcic, Supracalcic / Lithocalcic Calcarosol)
Calcareous sandy clay loam over carbonate rubble grading to sheet calcrete.

Wiabuna (rubbly) - A4a (Regolithic, Lithocalcic / Supracalcic Calcarosol)
Calcareous sandy loam to sandy clay loam grading to carbonate rubble.

Wiabuna - A5 (Regolithic, Lithocalcic Calcarosol)
Calcareous sandy loam becoming more clayey and calcareous with depth over rubbly carbonate within 50 cm, grading to clayey substrate within 100 cm.

Calcrete - B2b (Petrocalcic, Lithocalcic Calcarosol)
Thin calcareous sandy loam to clay loam over hard calcrete, associated with abundant surface calcrete and sheet rock.

Minor soils:

Moornaba - H2 (Calcareous, Arenic, Brown-Orthic / Bleached-Orthic Tenosol)
Very thick brown sand, often with a bleached A2 layer over a yellow or red clayey sand to sandy clay, overlying variable carbonate (fine to rubbly, occasionally sheet).

Lowan - H3 (Basic, Arenic, Bleached-Orthic Tenosol)
Thick bleached sand with a thin organically darkened surface layer, grading to a yellowish sand (often with darker lamellae), continuing below 150 cm.

Shallow Lowan - G2 (Bleached, Eutrophic / Calcic, Brown Chromosol)
Thick to very thick sand with a bleached A2 layer over a yellow to orange sandy clay loam to sandy clay.

Heggaton - G3 (Bleached, Calcic, Brown Chromosol)
Thick sand to loamy sand with a bleached A2 layer, abruptly overlying a weakly structured brown sandy clay to clay, calcareous with depth, grading to Tertiary sediments.

Wharminda - G4 (Hypercalcic, Brown Sodosol)
Medium to thick sand with a bleached A2 layer abruptly overlying a hard columnar structured dispersive brown mottled clay, highly calcareous with depth, grading to alluvial or Tertiary sediments.

Terre - B3 (Petrocalcic, Red Kandosol / Petrocalcic, Red-Orthic Tenosol)
Medium thickness sandy loam grading (in deeper profiles) to red massive sandy clay loam over calcrete at depths of up to 70 cm.

Sandy Wiabuna - A4b (Regolithic, Lithocalcic / Hypercalcic Calcarosol)
Calcareous sandy loam to loamy sand, becoming more calcareous with depth and with variable rubble, but without significant clay increase.

Summary: Calcareous sandy loams dominate the plains of this System. These vary from deeper types with marginally limited water holding capacity, through to very shallow types with severely restricted storage capacity. All are moderately fertile and have moderately low wind erosion potential. There are significant rocky areas which are non arable due to sheet calcrete at the surface. The limited occurrences of low parallel sandhills are infertile and moderately susceptible to wind erosion. Some are water repellent.



Soil Landscape Unit summary: 17 Soil Landscape Units (SLUs) mapped in the Murdinga Land System:

SLU	% of area	Component	Main soils	Prop#	Notes
O-C	0.2	Moderate sandhills	Moornaba	D	Sandhill - swale complexes with 30-60% low to moderate sandhills, and calcareous sandy loams, sometimes stony, in swales. <u>Wiabuna</u> Moderately fertile calcareous sandy loam with slight wind erosion potential. <u>Shallow Wiabuna</u> As for Wiabuna, but with limited water holding capacity and stony surface. <u>Moornaba</u> Low fertility, moderate to high wind erosion potential, often water repellent.
OuJ	0.2	Flats	Wiabuna	V	
		Low sandhills	Moornaba	E	
OvI	7.9	Flats	Wiabuna	E	
		Moderate sandhills	Moornaba	E	
		Stony flats	Shallow Wiabuna	L	
OvJ	1.9	Stony flats	Shallow Wiabuna	V	
		Low sandhills	Moornaba	E	
Q-A	4.9	Very stony flats	Calcrete	D	
QUA	7.9	Very stony flats	Calcrete	E	
		Stony flats	Shallow Wiabuna	C	
		Low sandhills	Shallow Moornaba	L	
		Flats	SL over calcrete	M	
QUE	1.5	Stony depressions with some salinity	Calcrete	D	
			Sandy loam over calcrete	M	
QaA	11.1	Stony flats	Shallow Wiabuna	E	
		Very stony flats	Calcrete	C	
		Low sandhills	Shallow Moornaba	L	
		Flats	SL over calcrete	M	
QdA	8.4	Stony flats	Shallow Wiabuna	V	
		Very stony flats	Calcrete	C	
		Flats	Sandy loam over calcrete	M	
QpA	17.0	Stony flats	Shallow Wiabuna	V	
		Low sandhills	Shallow Moornaba	L	
		Very stony flats	Calcrete	M	
		Flats	Sandy loam over calcrete	M	
SJA	1.3	Flats	Wiabuna	V	
		Sandy flats	Sandy Wiabuna	L	
SUA	26.2	Flats	Wiabuna	E	
		Sandy flats	Wharminda / sandy Wiabuna	E	
		Low sandhills	Shallow Moornaba	C	
SYA	3.5	Flats	Wiabuna	V	
		Stony flats	Shallow Wiabuna	L	
		Sandy flats	Sandy Wiabuna	M	
SZA	2.6	Stony flats	Shallow Wiabuna	V	
			Sandy Wiabuna	L	
ShA	5.3	Stony flats	Shallow Wiabuna	V	



		Very stony flats	Calcrete	L	and moderately susceptible to wind erosion. <u>Wharminda</u> Low fertility sandy soil with poorly structured subsoil (waterlogging, poor root growth), moderate wind erosion potential, water repellent. <u>Sandy Wiabuna</u> Low fertility, variable water holding capacity, prone to wind erosion. <u>Calcrete</u> Very shallow and stony with abundant surface stone and sheet calcrete - non arable
VJA	0.1	Old lake	-	D	-
ZD-	<0.1	Salt flats	Saline soils	D	-

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](#)

