

DIX Dixon Land System

Area: 332.4 km²

Landscape: Very gently undulating plains formed on Tertiary sediments, mantled by highly calcareous silty sands (Woorinen Formation), indurated to sheet calcrete in places. The plains are extensively covered by low to moderate parallel dunes of siliceous Molineaux Sand.

Annual rainfall: 320 – 380 mm average

Main soils:

- 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.
- Wiabuna - A4 (Regolithic, Hypercalcic / Lithocalcic Calcarosol)
Calcareous sandy loam grading to a rubbly very highly calcareous sandy clay loam over light clay from about 100 cm
- Minnipa - A5 (Regolithic, Supracalcic/Hypercalcic Calcarosol)
Calcareous sandy loam becoming more clayey and calcareous (often rubbly) with depth, grading to Tertiary clay.

Minor soils:

- Moornaba - H2 (Calcareous, Arenic, Red-Orthic / Yellow-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).
- 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 Yellow Chromosol)
Thick to very thick bleached sand over a yellow sandy light clay.
- Wiabuna (shallow) - B2 (Petrocalcic, Lithocalcic Calcarosol)
Calcareous sandy clay loam over carbonate rubble grading to sheet calcrete at between 20 cm and 50 cm.
- Calcrete - B2 (Petrocalcic, Lithocalcic Calcarosol)
Thin calcareous sandy loam to clay loam over hard calcrete, associated with abundant surface calcrete and sheet rock within 20 cm.
- Saline soil - N2 (Salic / Hypersalic Hydrosol)
Miscellaneous wet saline soil influenced by rising saline groundwater tables

Summary: Sandy soils predominate. On flats and inter-dune swales, sand over clay soils are characteristic. These have low fertility and are prone to wind erosion and water repellence. They also have poorly structured subsoils which impede water movement and root growth. On sandhills, sands are deeper, very infertile and highly susceptible to wind erosion. Water repellence is also an issue. Calcareous sandy loams are common in swales. These are more fertile and less prone to wind erosion than the sandy soils, but they often have limited water storage capacity.



Soil Landscape Unit summary: 16 Soil Landscape Units (SLUs) mapped in the Dixon Land System:

SLU	% of area	Component	Main soils	Prop#	Notes	
GFB	3.3	Very gentle sandy slopes	Wharminda	V	Very gentle slopes with varying proportions of the following soils: <u>Wharminda</u> : Low fertility sandy soil with poorly structured subsoil (waterlogging, poor root growth), moderate wind erosion potential, water repellent. <u>Wiabuna</u> : Moderately fertile calcareous sandy loam with slight wind erosion potential <u>Minnipa</u> : Fertile calcareous loam <u>Lowan</u> : Very low fertility, moderate to high wind erosion potential, water repellent. <u>Moornaba</u> : Similar to Lowan, but more fertile and less prone to water repellence. <u>Sh. Moornaba</u> : As for Moornaba, but with better waterholding capacity.	
		Very gentle sandy loam slopes	Wiabuna Minnipa	L L		
GGB	32.6	Very gentle sandy slopes	Wharminda	E		
		Very gentle sandy loam slopes	Wiabuna Minnipa	L L		
			Low sandhills	Moornaba / Lowan / shallow Lowan		L
GSB	7.6	Very gentle sandy slopes	Wharminda	E		
		Very gentle sandy loam slopes	Wiabuna Minnipa	C L		
IeA	2.0	Sandy loam flats	Wiabuna Minnipa	E E		Moderately fertile calcareous sandy loam with slight wind erosion potential
O-C	0.4	Moderate sandhills	Moornaba / Lowan	D		Dunefields where low to moderate parallel sandhills occupy more than 30% of the land. Low sandhills have moderate wind erosion potential, moderate sandhills have moderately high wind erosion potential. The following soils are typical: <u>Lowan</u> : Very low fertility, moderate to high wind erosion potential, water repellent. <u>Moornaba</u> : Similar to Lowan, but more fertile and less prone to water repellence. <u>Sh. Moornaba</u> : As for Moornaba, but with better water holding capacity. <u>Wiabuna</u> : Moderately fertile calcareous sandy loam with slight wind erosion potential <u>Minnipa</u> : Fertile calcareous loam <u>Wharminda</u> : Low fertility sandy soil with poorly structured subsoil (waterlogging, poor root growth), moderate wind erosion potential, water repellent.
OrJ	5.0	Swales	Wharminda / Wiabuna	E		
		Low sandhills	Moornaba/Lowan / shallow Lowan	E		
OsI	6.3	Swales	Wharminda	E		
		Moderate sandhills	Moornaba / Lowan / shallow Lowan	E		
OtF	0.9	Moderate sandhills	Moornaba / Lowan / shallow Lowan	E		
		Swales	Wiabuna Minnipa	E E		
OtI	20.1	Swales	Wiabuna	E		
			Minnipa	C		
OtJ	14.2	Moderate sandhills	Moornaba / Lowan / shallow Lowan	E		
			Swales	Wiabuna Minnipa	E C	
QRA	0.1	Very stony flats	Calcrete	D	Shallow stony soil - non arable.	
			Low sandhills	Moornaba / Lowan / shallow Lowan		L
QaA	2.2	Very stony flats	Calcrete	V	Flats are semi arable (stony), sandhills are infertile and prone to wind erosion.	
		Low sandhills	Moornaba / Lowan / shallow Lowan	L		
SYA	4.2	Stony sandy loam flats	Wiabuna / shallow Wiabuna	D	Moderately fertile soils but with moderately low waterholding capacities and workability limitations due to stone.	
VLA	0.1	Old lake bed	-	D	-	
ZB-	1.0	Saline flats	Saline soil	D	Too salty for cropping, but suitable for salt tolerant grasses and forage species.	
ZC-	<0.1	Highly saline flats	Saline soil	V	No agricultural value.	
		Stony flats	Calcrete	C		



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

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

Further information: [DEWNR Soil and Land Program](#)

