

VER Verran Land System

Area: 487.5 km²

Landscape: Very gently undulating plain formed over Tertiary sediments capped by highly calcareous silty sands of the Woorinen Formation. Draped across the main landscape are low to moderate parallel siliceous sandhills. These occupy about 15% of the area.

Annual rainfall: 325 - 400 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 - A4a (Regolithic, Lithocalcic / Supracalcic Calcarosol)
Calcareous sandy loam to sandy clay loam grading to carbonate rubble.

Lowan (shallow) - G2 (Bleached, Mesotrophic, Brown Chromosol)
Very thick sand with a bleached A2 layer over a yellow to orange sandy clay loam to sandy clay.

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

Saline soil - N2b (Salic / Hypersalic Hydrosol)
Miscellaneous wet saline soil influenced by rising saline groundwater tables.

Cleve - D3a (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.

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

Yamba - N2a (Hypersalic Hydrosol)
Variable highly saline sand and clay of coastal flats and swamps.

Mangalo - D1 (Hypercalcic, Red Chromosol / Calcareous, Inceptic, Red-Orthic Tenosol)
Thin to medium thickness coarse loamy sand to sandy loam over a red well structured clay forming in weathering basement rock with abundant fine carbonate in fissures.

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.

Deakin - D3b (Calcic, Red Sodosol)
Medium thickness hard sandy loam to sandy clay loam over a coarsely structured red sandy clay, calcareous with depth, grading to Tertiary sediments.

Semaphore - H1/H3a (Shelly Rudosol)
Very thick sand comprising mixed shell and quartz grains.

Lowan - H3b (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.

Magnesia soil - A4b (Epihypersodic, Supracalcic, Regolithic Calcarosol)
Calcareous sandy loam to sandy clay loam, becoming more clayey and rubbly with depth. Saline throughout.

Bayley - A8 (Hypergyptic Calcarosol)
Calcareous loam grading to a highly calcareous sandy clay loam over powdery gypsum.



Summary:

The landscape is characterized by calcareous sandy loams with moderate fertility, restricted waterholding capacity and slight wind erosion potential, and sandy soils (on flats and sandhills) with low fertility and moderate to high wind erosion potential. Some are water repellent. The land is arable except for some larger sandhills (5 - 10% of the area), stony flats with shallow soils (about 2% of the area), and salt affected land (less than 1% of the area).

Soil Landscape Unit summary: 29 Soil Landscape Units (SLUs) mapped in the Verran Land System

SLU	% of area	Component	Main soils	Prop#	Notes
AKB	0.05	Rocky outcrops	Skeletal	D	Very rocky - non arable
ETB	0.1	Very gentle slopes with outcrop	Mangalo / Skeletal	D	Semi arable - rock outcrop, shallow soil.
GXB	48.5	Very gentle slopes	Wharminda	E	Association of sandy and sandy loam 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>Cleve</u> : Moderately fertile, slight wind and water erosion potential. <u>Deakin</u> : Moderately fertile, subsoil boron and salt. Moderately low erosion potential <u>Mangalo/skeletal</u> : Moderately fertile but shallow and semi arable - rock outcrop. Minor salinity throughout.
			Wiabuna	C	
			Cleve	L	
			Mangalo / skeletal	M	
GZB	2.7	Very gentle slopes	Wharminda	V	
		Depressions	Deakin	L	
O-C	0.3	Moderate sandhills	Shallow Lowan Lowan	E E	Dunefields of parallel siliceous sandhills occupying more than 30% of the area. Differences between units are due to sandhill frequency / height variations, and variations in swale soils. Typical soils are: <u>Shallow Lowan / Lowan</u> : Very low fertility, moderate to high wind erosion potential. <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>Shallow Wiabuna</u> : As for Wiabuna but with reduced waterholding capacity and more surface stone.
OrI	6.8	Swales	Wiabuna	E	
		Moderate sandhills	Shallow Lowan / Lowan	E	
OrK	2.5	Swales	Wharminda / Wiabuna	E	
		Sandspreads	Sh. Lowan / Lowan	E	
OrP	1.2	Swales	Wharminda / shallow Wiabuna	E	
		Moderate sandhills	Shallow Lowan/Lowan	E	
OuF	3.6	Moderate sandhills	Shallow Lowan / Lowan	E	
		Swales	Wharminda / Wiabuna	E	
OuI	7.2	Swales	Wharminda / Wiabuna	E	
		Moderate sandhills	Shallow Lowan / Lowan	E	
OuJ	0.2	Swales	Wharminda / Wiabuna	E	
		Low sandhills	Shallow Lowan / Lowan	E	



QRA	0.8	Very stony flats	Calcrete soil	D	Non arable - shallow stony soil.
QaA	6.4	Stony flats	Shallow Wiabuna	V	Semi arable flats (shallow and stony soils), and low fertility wind erosion prone sandhills.
		Low sandhills	Shallow Lowan / Lowan	L	
		Very stony flats	Calcrete soil	M	
QdA	0.7	Stony flats	Shallow Wiabuna	V	Semi arable - shallow stony soils.
		Very stony flats	Calcrete soil	C	
SUA	6.3	Flats	Wiabuna / Wharminda	V	Flats and very gentle slopes with mainly calcareous sandy loam soils and subdominant sandy soils on flats and sandhills (which account for less than 30% of the area). There is sporadic salinity. Soils are:
		Low sandhills	Shallow Lowan / Lowan	C	
SUK	1.1	Flats with up to 2% saline patches	Wiabuna / Wharminda	V	<u>Wiabuna</u> : Moderately fertile calcareous sandy loam with slight wind erosion potential <u>Wharminda</u> : Low fertility sandy soil with poorly structured subsoil (waterlogging, poor root growth), moderate wind erosion potential, water repellent.
		Low sandhills	Shallow Lowan / Lowan	C	
SUP	0.3	Flats with 2-10% saline patches	Wiabuna / Wharminda	V	<u>Shallow Lowan</u> : Very low fertility, moderate to high wind erosion potential.
		Low sandhills	Sh. Lowan / Lowan	C	
SUQ	2.5	Very gentle slopes with 2-10% saline patches	Wiabuna / Wharminda	V	
		Low sandhills	Sh. Lowan / Lowan	C	
WFE	0.3	Low coastal sandhills	Semaphore	D	Complex of coastal sandhills with very low fertility and very high wind erosion potential, and highly saline flats. No agricultural potential.
WFH	0.4	Low coastal sandhills	Semaphore	V	
		Salt flats	Yamba	E	
WO-	1.4	Salt flats	Yamba	D	
WOU	0.6	Salt flats	Yamba	E	
		Low coastal sandhills	Semaphore	E	
ZA-	1.9	Watercourse complex: Sandy / sandy loam flats and rises	Wharminda / Wiabuna	E	Semi arable (non saline areas) with potential for salt tolerant grasses and forage plants on saline flats.
		Saline flats	Saline soil	E	
ZAv	1.1	Watercourse complex: Sandy / sandy loam flats and rises	Wiabuna / Wharminda	E	Semi arable (non saline areas) with potential for salt tolerant grasses and forage plants on saline flats.
		Highly saline flats	Saline soil	E	
ZB-	1.0	Highly saline flats	Saline soil	D	No agricultural use.
ZD-	0.01	Salt lakes	-	D	
ZE-	0.4	Complex of salt flats and salt lakes	-	D	
ZK-	1.6	Salt flats	Saline soil	V	
		Low sandhills	Shallow Lowan	C	
ZM-	0.1	Gypsum lunettes	Bayley	D	Low fertility, marginal salinity, wind erosion potential.

PROPORTION codes assigned to soils within Soil Landscape Units (SLU):

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](#)

