WKT Wookata Land System

Area: 1,838.3 km^2

Landscape: Undulating rises and low hills ("Coast Range") formed on calcretes of the Ripon / Bakara and Bridgewater Formations, almost completely overlain by highly calcareous silty sands of the Woorinen Formation, and highly calcareous Lowan Sands. There are minor coastal dunes.

Annual rainfall: 250 - 350 mm average

Main soils:

Wookata - **A1a** (Supravescent, Hypercalcic / Lithocalcic Calcarosol)
Very highly calcareous (more than 40% $CaCO_3$) soft loamy sand to sandy loam grading to very highly calcareous sandy loam with variable rubble content.
Magarey - **A1b** (Supravescent, Hypercalcic / Lithocalcic Calcarosol)
Very highly calcareous (more than 40% $CaCO_3$) soft sandy loam to light sandy clay loam grading to very highly calcareous light sandy clay loam with variable rubble content.

Minor soils:

Russell - **B1a** (Supravescent, Petrocalcic, Lithocalcic Calcarosol)
Medium thickness highly calcareous loamy sand to sandy loam containing increasing amounts of rubble with depth, over sheet calcrete at less than 50 cm.
Chintumba - **B1b** (Hypervescent, Petrocalcic, Lithocalcic Calcarosol)
Medium thickness highly calcareous sandy loam to sandy clay loam containing increasing amounts of rubble with depth, over sheet calcrete at less than 50 cm.
Shallow Wookata - **A1c** (Supravescent, Petrocalcic, Hypercalcic / Lithocalcic Calcarosol)
Very highly calcareous (more than 40% $CaCO_3$) soft loamy sand to sandy loam grading to very highly calcareous sandy loam with variable rubble content, over calcrete at about 40 cm.
Haslam - **H1a** (Supravescent, Hypercalcic Calcarosol OR Shelly Calcarosol)
Thick highly calcareous sand, becoming more calcareous with depth and continuing below 100 cm. These soils may consist of up to 90% fine shell fragments.
Shallow Haslam - **H1b** (Hypervescent, Regolithic, Supracalcic Calcarosol)
Highly calcareous loamy sand becoming slightly more clayey and very highly calcareous with variable rubbly carbonate at depth
Nundroo - **B2** (Hypervescent, Petrocalcic, Hypercalcic Calcarosol)
Highly calcareous reddish clay loam grading to a very highly calcareous yellowish red light clay over rubbly or more commonly sheet calcrete within 75 cm.
Magnesia - **A4** (Epihypersodic, Supracalcic, Regolithic Calcarosol)
Calcareous sandy loam to sandy clay loam, becoming more clayey and rubbly with depth. Saline throughout.
Semaphore - **H1c/H3** (Shelly Rudosol)
Very thick sand comprising mixed shell and quartz grains.
Yamba - **N2a** (Hypersalic Hydrosol)
Variable highly saline sand and clay of coastal flats and swamps.
Saline soil - **N2b** (Salic / Hypersalic Hydrosol)
Miscellaneous wet saline soil influenced by rising saline groundwater tables.

Summary: Very gently undulating rises and moderately inclined low hills of the Coast Range. The landscape is dominated by highly calcareous sandy loams. These soils are generally arable, but productivity is limited by wind erosion potential, marginal fertility and limited waterholding capacity, especially on shallower stony soils. On the slopes of the main range, there is a risk of water erosion.

Soil Landscape Unit summary: 18 Soil Landscape Units (SLUs) mapped in the Wookata Land System

SLU	% of area	Component	Main soils	Prop#	Notes
IUU	0.1	Flats and depressions with 10-50% magnesia patches	Nundroo	V	Clayey flats with variable salinity (and extensive magnesia patches), and high boron - non arable.
			Magnesia	C	
MzC	3.3	Steep rocky slopes on coast	Russell	D	Too stony, steep and exposed for cropping - limited grazing potential.
QHA	1.3	Stony flats	Chintumba	D	Stony land on Ripon / Bakara Calcrete - semi arable due to shallow soil and extensive sheet rock
QHB	2.3	Stony rises	Chintumba	D	
WFC	0.1	High coastal dunes	Semaphore	D	Coastal land with fragile dunes and swamps - high conservation value.
WM-	0.1	Mangrove swamps	Yamba	D	
WR-	0.1	Saline back swamp	Yamba	V	
		High coastal dune	Semaphore	E	
YAL	55.5	Sandy loam rises	Wookata	V	Rises and moderate slopes (coast range) formed on Woorinen Formation deposits with mainly highly calcareous sandy loams and highly calcareous sands. Main factors affecting productivity are wind erosion potential, marginal fertility, limited waterholding capacity, and water erosion potential on **YAp** and **YOp**. Main soils: Wookata: Highly calcareous sandy loam with slightly limited waterholding capacity, low fertility, subsoil boron and salt, and slight to moderate wind erosion potential. Magarey: Marginal fertility highly calcareous sandy loam with high subsoil boron and salt. Slight wind erosion potential. Shallow Wookata: As for Wookata, except that waterholding capacity is reduced, and surface stone is increased to the point where it interferes with tillage. Haslam: Highly calcareous sand with very low fertility and high wind erosion potential.
			Magarey	C	
YAp	4.7	Moderate sandy loam slopes	Wookata	V	
			Magarey	C	
YEL	12.8	Sandy loam rises	Wookata	V	
		Stony rises	Shallow Wookata	C	
YID	0.9	Moderate sandhills	Shallow Haslam	E	
		Sandy loam rises	Wookata	E	
YIK	0.3	Sandy rises	Shallow Haslam	E	
		Sandy loam rises	Wookata	E	
YKE	<0.1	Moderate sandhills	Haslam	D	
YMH	0.2	Sandy loam rises / moderate sandhills	Wookata / Haslam	D	
YNL	3.4	Sandy loam / sandy rises	Wookata / Haslam	D	
YOL	12.4	Sandy loam rises	Magarey	D	
YOp	2.1	Moderate sandy loam slopes	Magarey	D	
ZH-	0.4	Complex of marginally saline and highly saline flats and salt lakes	Saline soil	D	Some potential for salt tolerant plant establishment

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