

# POL Polda Land System

**Area:** 2,371.4 km<sup>2</sup>

**Landscape:** Gently undulating rises and plains underlain by Bridgewater Formation calcarenites (cemented coastal sands), partly covered by calcareous silty sands (Woorinen Formation) and shell sands (Haslam Sand). There are minor areas of older calcretes of the Ripon / Bakara Formation. Deep calcareous and siliceous sand (Semaphore Sand) occurs on coastal dunes, between which are saline flats formed on Yamba Formation sediments.

**Annual rainfall:** 350 - 450 mm average

**Main soils:** Terre - B3 (Petrocalcic, Leptic Tenosol)  
Thin to medium thickness red sandy loam to clay loam over sheet calcrete.  
Calcrete - B2a (Petrocalcic, Lithocalcic Calcarosol)  
Thin calcareous sandy loam to clay loam over hard calcrete, associated with abundant surface calcrete and sheet rock.

**Minor soils:** Wookata (shallow) - A1/B1 (Supravescent, Petrocalcic, Hypercalcic / Lithocalcic Calcarosol)  
Very highly calcareous (>40% CaCO<sub>3</sub>) 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 / 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.  
Wookata - A1 (Supravescent, Hypercalcic / Lithocalcic Calcarosol)  
Very highly calcareous (more than 40% CaCO<sub>3</sub>) soft loamy sand to sandy loam grading to very highly calcareous sandy loam with variable rubble content.  
Russell - B1 (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.  
Wiabuna (shallow) - B2b (Petrocalcic / Lithocalcic Calcarosol)  
Calcareous sandy clay loam over carbonate rubble grading to sheet calcrete.  
Mitchellville - B2c (Petrocalcic Calcarosol)  
Calcareous light sandy loam to light sandy clay loam with variable nodular calcrete, over rubbly or sheet calcrete.  
Saline soil - N2 (Salic / Hypersalic Hydrosol)  
Miscellaneous wet saline soil influenced by rising saline groundwater tables.  
Semaphore - H1b/H3 (Shelly / Arenic Rudosol)  
Very thick sand comprising mixed shell and quartz grains.  
Shell grit - H1c (Shelly Rudosol)  
Thick beds of coarse sand and grit (shell fragments).

**Summary:** The majority of the landscape is flat to very gently undulating with surface calcrete stone and near surface sheet rock characteristic features. The soils are shallow and stony calcareous and non calcareous sandy loams, their major limitations being low to very low waterholding capacity and surface stone, generally rendering the land non arable. There are patches of deeper highly calcareous sandy loams and spreads and low sandhills of calcareous sands. These have better waterholding capacities, but low fertility and wind erosion potential severely restrict cropping opportunities. Most of the land is used for extensive grazing, with some cropping where there are significant patches of deeper soils.



**Soil Landscape Unit summary:** 41 Soil Landscape Units (SLUs) mapped in the Polda Land System:

SLU	% of area	Component	Main soils	Prop#	Notes
M-A	24.4	Very stony flats	Terre / Calcrete	D	Stony to very stony flats and rises formed on calcreted calcarenite of the Bridgewater Formation (ie cemented coastal sands). Most soils are shallow and stony, but there are some deeper sandy loams and sand spreads (Haslam sand). Typical soils are: <u>Terre</u> : Shallow stony sandy loam to sandy clay loam - marginally arable due to low water holding capacity and surface stone / sheet rock. <u>Calcrete</u> : Very shallow stony sandy loam associated with more than 50% sheet calcrete. <u>Haslam</u> : Deep calcareous (shell) sand with very low fertility and high wind erosion potential. Haslam sand spreads have moderate erosion potential; moderate to high sandhills have high to extreme potential. <u>Shallow Wookata</u> : Highly calcareous sandy loam with limited waterholding capacity, low fertility and slight to moderate wind erosion potential. Significant surface stone (interferes with tillage). <u>Shallow Wiabuna</u> : Calcareous sandy loam with limited waterholding capacity, moderate fertility and slight to moderate wind erosion potential. Significant surface stone (interferes with tillage).
M-Ar	1.5	Stony flats	Terre / Calcrete	V	
		Stony ridges	Terre / Calcrete	L	
M-As	10.0	Very stony flats	Terre / Calcrete	D	
		Sandy rises	Haslam	M	
M-B	1.7	Very stony rises	Terre / Calcrete	D	
M-Bw	1.1	Very stony rises with water courses	Terre / Calcrete	D	
MAC	0.2	Moderate very stony slopes	Terre / Calcrete	D	
MaA	1.0	Very stony flats	Terre / Calcrete	D	
		Very stony ridges	Terre / Calcrete	M	
MaB	5.8	Very stony rises	Terre / Calcrete	D	
		Very stony ridges	Terre / Calcrete	M	
MdA	6.2	Stony flats	Terre / Calcrete	V	
		Sandy rises	Haslam	L	
MdB	21.1	Very stony rises	Terre / Calcrete	V	
		Stony rises	Shallow Wiabuna	L	
MeA	1.4	Stony flats	Shallow Wookata	E	
		Sand spreads	Haslam	E	
MeB	1.5	Stony rises	Terre / Calcrete	V	
		Sand spreads	Haslam	L	
MeC	0.7	Moderate slopes	Shallow Wookata	V	
		Sandspreads	Haslam	L	
MgA	2.2	Stony flats	Shallow Wookata	E	
			Terre / Calcrete	E	
MgB	0.7	Stony rises	Shallow Wookata	E	
			Terre / Calcrete	E	
MiA	0.8	Stony flats	Shallow Wookata	D	
MoA	9.8	Very stony flats	Terre / Calcrete	D	
MoAs	4.1	Very stony flats	Terre / Calcrete	V	
		Sand spreads	Haslam	L	
QUE	<0.1	Stony depressions with minor salinity	Terre / Mitchellville	D	
QVA	<0.1	Very stony flats	Terre / Mitchellville	D	
VFA	<0.1	Old lake bed	-	-	
WFC	0.1	Large coastal dunes	Semaphore	D	
WFD	0.2	Moderate coastal dunes	Semaphore	D	
WFE	0.1	Small coastal dunes	Semaphore	D	
WFc	<0.1	Large bare coastal dunes	Semaphore	D	
WJb	<0.1	Stony flat	Calcrete	D	
WL-	0.1	Shell grit flats	Shell grit	D	
WM-	<0.1	Mangrove swamp	Saline soil	D	
WQ-	<0.1	Salt flats	Saline soil	D	
WX-	0.9	Frontal slopes - sandy	Semaphore	E	
		Frontal slopes - stony	Russell	E	



YAp	0.5	Low rises	Wookata	V	<p>Flats and very gentle slopes formed on highly calcareous Woorinen Formation deposits, with calcrete commonly near the surface. The soils are highly calcareous sandy loams, with shallow stony calcareous and non-calcareous sandy loams in stony areas. The landscape is partly covered by a veneer of calcareous sand usually as sand spreads, but sometimes as low sandhills with moderate to moderately high wind erosion potential. Typical soils are:</p> <p><u>Wookata</u>: Highly calcareous sandy loam with slightly limited waterholding capacity, low fertility and slight to moderate wind erosion potential.</p> <p><u>Shallow Wookata</u>: As for Wookata, except that waterholding capacity is reduced, and surface stone is increased to the point where it interferes with tillage.</p> <p><u>Haslam</u>: Deep calcareous (shell) sand with very low fertility and high wind erosion potential. Haslam sand spreads have moderate erosion potential; moderate to high sandhills have high to extreme potential.</p> <p><u>Calcrete</u>: Very shallow stony sandy loam associated with more than 50% sheet calcrete.</p> <p><u>Terre</u>: Shallow stony sandy loam to sandy clay loam - marginally arable due to low waterholding capacity and surface stone / sheet rock.</p> <p>Low fertility, high wind erosion potential and low soil waterholding capacities are the characteristics of these units.</p>
		Sand spreads	Haslam	L	
YLL	0.1	Flats	Wookata	E	
		Stony flats	Shallow Wookata	C	
		Sand spreads	Haslam	C	
YOL	0.3	Flats	Wookata	V	
		Sand spreads	Haslam	C	
Ybp	0.2	Very gentle slopes	Wookata	V	
		Very gentle stony slopes	Shallow Wookata	L	
YeH	0.6	Moderate sandhills	Haslam	E	
		Stony flats	Shallow Wookata	E	
YeK	<0.1	Stony flats	Shallow Wookata	E	
		Very stony flats	Terre / Calcrete	E	
Yeo	1.2	Very gentle slopes	Wookata	E	
		Very gentle stony slopes	Shallow Wookata	E	
		Low sandhills	Haslam	C	
Yep	<0.1	Very gentle slopes	Wookata	E	
		Very gentle stony slopes	Shallow Wookata	E	
YfK	0.6	Stony flats	Shallow Wookata	V	
		Sand spreads	Haslam	C	
ZD-	<0.1	Salt flats	Saline soil	D	
ZK-	0.9	Salt flats	Saline soil	V	
		Rises	Calcrete / Haslam	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](#)

