

ULE Uley Land System

Area: 1,349.0 km²

Landscape: Gently undulating to undulating stony rises formed on Bridgewater Calcarenes. Abundant surface stone and extensive sheet calcrete are characteristic of the landscape. In places, calcareous Woorinen Formation silty sands and Lowan Sands blanket the surface giving rise to deeper sandy loam and sandy soils. Basement granites, gneisses, schists and quartzites protrude through the Bridgewater in the south east and along the west coast. These are abrupt rises and low hills with shallow stony soils. Tertiary sediments also protrude through the Bridgewater Formation in places. These are marked by ironstone soils. Along the coastal strip are modern dunes and saline back swamps.

Annual rainfall: 375 - 525 mm average

Main soils: Terre - B3 (Petrocalcic, Leptic Tenosol)
Thin to medium thickness red sandy loam to clay loam over sheet calcrete.
Calcrete - B2 (Petrocalcic, Lithocalcic Calcarosol)
Thin calcareous sandy loam to clay loam over hard calcrete, associated with abundant surface calcrete and sheet rock.

Minor soils: Wookata - A1 (Supravescent, Hypercalcic / Lithocalcic Calcarosol)
Very highly calcareous (more than 40% CaCO₃) soft loamy sand to sandy loam grading to very highly calcareous sandy loam with variable rubble content.
Vanilla (sodic) - J1 (Ferric, Brown Sodosol)
30 cm sandy loam with a bleached A2 layer containing abundant ironstone gravel, overlying a yellowish brown poorly structured mottled sodic clay, often calcareous with depth.
Semaphore - H1a/H3 (Shelly Rudosol)
Very thick sand comprising mixed shell and quartz grains.
Shallow Semaphore - H1b (Petrocalcic, Shelly Rudosol)
Thick shell sand over calcrete between 50 and 100 cm.
Shallow Haslam - H1c (Supravescent, Regolith, Hypercalcic Calcarosol)
Highly calcareous loamy sand over calcrete at moderate depth (50-100 cm).
Haslam - H1d (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.
Skeletal soil - L1 (Lithic / Petroferric, Leptic Tenosol / Rudosol)
Variable gravelly loamy sand to sandy clay loam over granite (**L1a**) or schist (**L1b**), and sometimes massive ironstone, at depths usually less than 50 cm.
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.
Ness - D6 (Ferric, Calcic, Brown Chromosol)
Thin loamy sand to sandy loam over a brown to orange weakly structured clay with abundant ironstone gravel, calcareous with depth, grading to Tertiary clay or deeply weathered rock.
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.
Deep calcareous sandy loam - A3 (Regolith, Calcic Calcarosol)
Calcareous sandy loam grading to a highly calcareous sandy clay loam over alluvium.



Summary:

The bulk of the landscape comprises gently undulating to undulating calcrete with shallow stony calcareous and non calcareous sandy loams. These are semi to non arable due to low waterholding capacity and machinery operation problems, although they are commonly fertile. Minor ironstone rich sandy loams and highly calcareous sandy loams to sands are deeper and potentially arable soils, but commonly occur as relatively small patches within larger non arable tracts. Shallow stony soils on basement rock outcrops, coastal sandhills and saline flats all have little if any agricultural value, and most are contained within conservation areas.

Soil Landscape Unit summary: 46 Soil Landscape Units (SLUs) mapped in the Uley Land System

SLU	% of area	Component	Main soils	Prop#	Notes
A-kg	2.2	Calcreted granite outcrops	Calcrete / skeletal	D	Shallow stony soils covered by scrub.
AKC	0.02	Mod. steep rocky slopes	Skeletal / Ness	D	Shallow stony soils over granite, with deeper ironstone rich soils - marginal for cultivation.
AMB	0.1	Gentle to moderate rocky slopes	Skeletal	D	Rocky slopes on gneisses, schists & quartzites. Land is too rocky &/or steep for cultivation.
AMC	0.2	Moderate rocky slopes	Skeletal	D	Used for grazing or conservation.
AMD	0.2	Steep rocky slopes	Skeletal	D	
FEB	0.5	Low rises	Wanilla (sodic)	D	Rises on lateritized Tertiary sediments. Wanilla / Ness soils are deep, marginally to moderately fertile but prone to acidification. Minor to moderate susceptibility to waterlogging. Slight to moderate water erosion potential, minor saline seepage.
FJC	0.1	Gentle slopes	Ness	D	
FOB	0.3	Very gentle slopes	Wanilla (sodic) / Ness	E	
		Rocky slopes	Calcrete	E	Calcrete soils are shallow, stony and non arable.
KBC	0.1	Gentle slopes	Calcareous loam	D	Deep calcareous sandy loam on gentle slopes. Potentially productive.
MAA	0.2	Stony flats	Terre / Calcrete	D	Gently undulating to undulating rises on Bridgewater Calcarenites, partly overlain by highly calcareous Woorinen and Lowan deposits. Remnant ironstone capped Tertiary sediments protrude through in places. Shallow stony soils with extensive sheet calcrete are characteristic of these landscapes. Most land (Calcrete and Terre soils) is stony and non to semi arable, but some soils are deeper: Calcrete: Very shallow stony sandy loam associated with more than 50% sheet calcrete. Terre: Shallow stony sandy loam to sandy clay loam - marginally arable due to low waterholding capacity and surface stone / sheet rock. Wookata: Highly calcareous sandy loam with slightly limited waterholding capacity, low fertility and slight to moderate wind erosion potential. Haslam: Deep calcareous (shell) sand with very low fertility and high wind erosion potential. Haslam sand spreads have
MAB	4.3	Very stony rises	Terre / Calcrete	D	
MABs	0.5	Very stony rises with sinkholes	Calcrete / Terre	D	
MAC	0.2	Very stony slopes	Calcrete / Terre	D	
MAm	2.0	Very stony flats	Calcrete / Terre	E	
		Saline depressions	Saline soil	E	
MAn	4.8	Very stony rises	Calcrete / Terre	D	
		Saline depressions	Saline soil	M	
MaB	1.6	Rises	Wookata / Haslam / Terre	D	
MaBr	0.1	Stony slopes and ridges	Terre / Wookata / Russell	D	
MaC	3.5	Slopes	Wookata / Haslam / Terre	D	
Mdh	2.2	Very stony rises	Calcrete / Terre	E	
		Saline depressions	Saline soil	E	
Mdn	2.8	Very stony rises	Calcrete / Terre	V	
		Sand spreads	Haslam	C	
MeD	0.6	Moderate sandy / stony slopes	Haslam / Terre	D	
MgB	8.2	Stony rises	Terre / Calcrete	V	
		Sandy loam rises	Wookata	E	



MhB	48.3	Very gently undulating stony rises	Terre / Calcrete	D	<p>moderate erosion potential; moderate to high sandhills have high to extreme potential.</p> <p><u>Wanilla (sodic)</u>: Ironstone gravelly sandy loams on Tertiary sediments. Marginal fertility and prone to waterlogging and water erosion.</p> <p><u>Saline soil</u>: Areas where saline water tables are near the surface – non arable</p>
MhC	3.8	Gently undulating stony rises	Terre / Calcrete	D	
MhD	1.0	Moderate stony slopes	Terre / Calcrete	D	
MhE	1.3	Stony depressions	Terre / Calcrete	D	
MjB	0.6	Stony/sandy rises	Terre / Haslam	D	
MkA	1.2	Ironstone flats	Wanilla (sodic)	V	
		Stony flats	Terre / Calcrete	L	
MkC	2.6	Moderate, very stony slopes	Terre / Calcrete	V	
		Ironstone slopes	Wanilla (sodic)	C	
MmB	0.3	Stony rises	Terre / Calcrete	V	
		Ironstone rises	Wanilla (sodic)	C	
MxA	0.1	Flats	Wookata / Calcrete	E	
		Ironstone flats	Wanilla (sodic)	E	
WFC	1.0	High coastal dunes	Semaphore	D	<p>Coastal landscapes with moderate to high dunes (Semaphore), stony slopes (Russell) and saline back swamps (Yamba). Most of this land is fragile, easily degraded and of no agricultural value. Protection of dunes and amelioration of past erosion damage are main management issues.</p>
WFE	0.2	Moderate coastal dunes	Semaphore	D	
WFc	0.2	High bare coastal dunes	Semaphore	D	
WHD	0.4	High older coastal dunes	Semaphore	D	
WJ-	0.2	Tidal flats	Yamba	V	
		Very stony rises	Russell	E	
WM-	0.1	Mangrove swamps	-	D	
WO-	0.2	Salt flats	Yamba	D	
WR-	0.2	Salt flats	Yamba	V	
		Coastal dunes	Semaphore	L	
WX-	1.2	Sandy frontal slopes	Semaphore	E	
			Russell	E	
WY-	0.8	Stony frontal slopes	Russell	D	
WYA	0.1	Eroded stony frontal slopes	Russell	D	
YHK	0.1	Sandy loam rises	Wookata	D	
ZD-	0.7	Salt lakes	-	D	<p>Saline flats with limited stony or sandy rises. Little agricultural value.</p>
ZHJ	0.6	Salt flats	Saline soil	V	
		Stony / sandy rises	Calcrete / Haslam	C	
ZK-	0.2	Salt flats	Saline soil	E	
		Stony rises	Calcrete	E	

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

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|---|--|---|-----------------------------------|
| 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](#)

