ELS Elliston Land System

Area: 851.8 km^2

Landscape: Rises and low hills formed on calcreted calcarenites of the Bridgewater Formation. These are ancient coastal sandhills, remnants of old shorelines from periods of higher sea levels. The calcrete is covered in places by highly calcareous silty sands of the Woorinen Formation, and calcareous sands. Dunes of calcareous and siliceous Semaphore Sands line the modern coastline.

Annual rainfall: 360 – 465 mm average

Main soils:

Calcrete - **B2** (Petrocalcic, Lithocalcic Calcarosol)
Thin calcareous sandy loam to clay loam over hard calcrete within 50 cm (B2), or deeper than 50 cm (A4). Associated with abundant surface calcrete and sheet rock.

Terre - **B3** (Petrocalcic, Leptic Tenosol)
Thin to medium thickness red sandy loam to clay loam over sheet calcrete.

Wookata (shallow) - **A1/B1** (Supravescent, Petrocalcic, Hypercalcic / Lithocalcic Calcarosol)
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.

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.

Minor soils:

Wiabuna - **A4** (Regolithic, Lithocalcic / Supracalcic Calcarosol)
Calcareous sandy loam to sandy clay loam grading to carbonate rubble.

Wookata - **A1** (Supravescent, Hypercalcic / Lithocalcic Calcarosol)
Highly calcareous (more than 40% $CaCO_3$) soft loamy sand to sandy loam grading to very highly calcareous sandy loam with variable rubble content.

Saline soil - **N2** (Salic / Hypersalic Hydrosol)
Miscellaneous wet saline soil influenced by rising saline groundwater table.

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.

Semaphore - **H1b/H3** (Shelly Rudosol)
Very thick sand comprising mixed shell and quartz grains.

Calcareous loam (shallow) - **A2** (Paralithic, Hypercalcic / Lithocalcic Calcarosol)
Calcareous loam grading to highly calcareous clay loam over Class III A, B or C carbonate merging with weathering rock.

Skeletal soil - **L1** (Lithic, Leptic Tenosol / Rudosol)
Variable gravelly loamy sand to sandy clay loam over basement rock at depths usually less than 50 cm.

Summary: The landscape is dominated by undulating stony rises on sheet calcrete. Most rises are non arable due to the shallowness of the soils and the extent of surface stone and sheet rock. The areas of deeper calcareous sandy loams have some cropping potential, but low fertility, moderate wind erosion potential and limited waterholding capacity restrict productivity. Deep calcareous sands have very low fertility and very high wind erosion potential. Coastal landscapes are fragile areas of no agricultural use, usually requiring protective measures to control wind erosion.

Soil Landscape Unit summary: 23 Soil Landscape Units (SLUs) mapped in the Elliston Land System:

SLU	% of area	Component	Main soils	Prop#	Notes
A-g	<0.1	Granite outcrops	Skeletal	D	Basement rock highs with shallow stony soils and extensive rock outcrop and surface stone - semi to non arable.
EIC	1.6	Stony slopes	Shallow calc loam	V	
			Calcrete	L	
MAB	0.6	Gently undulating stony rises	Calc/ Terre/ Wiabuna	D	Gently undulating to undulating rises formed on calcreted calcarenite. There is extensive sheet calcrete at or near the surface, and most of the land is non arable. Typical soils: 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 water holding capacity and surface stone / sheet rock. Shallow Wookata: Highly calcareous sandy loam with limited water holding capacity, low fertility and slight wind erosion potential. Rocks hamper or prevent cultivation. Wiabuna: Moderately fertile calcareous sandy loam with slight wind erosion potential. Haslam: 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. Wookata: Highly calcareous sandy loam with slightly limited water holding capacity, low fertility and slight to moderate wind erosion potential.
MAC	40.5	Undulating stony rises	Calc/ Terre/ Wiabuna	D	
MdA	1.2	Very stony flats	Calc/ Terre/ Wiabuna	D	
MdB	1.5	Gently undulating rises:			
		Stony	Calc/ Terre/ Wiabuna	V	
		Moderately stony	Shallow Wookata	C	
MdC	6.2	Undulating rises:			
		Stony	Calc/ Terre/ Wiabuna Shallow	V	
		Moderately stony	Wookata	C	
MeB	3.9	Gently undulating rises:			
		Moderately stony	Shallow Wookata	E	
		Very stony	Calc/ Terre/ Wiabuna	E	
MeC	0.2	Undulating stony rises	Shallow Wookata	E	
		Sandspreads	Haslam	E	
MgB	0.2	Gently undulating rises:			
		Stony	Calc/ Terre/ Wiabuna	V	
		Sandy loam	Wookata	E	
WFC	0.8	High coastal dunes	Semaphore	D	Coastal dunes and frontal slopes of deep sand with high to extreme wind erosion potential, and shallow stony soils on calcrete. This land has no productive value, and is often degraded.
WFD	0.1	Moderate coastal dunes	Semaphore	D	
WFc	1.6	High bare coastal dunes	Semaphore	D	
WX-	2.0	Moderate sandy slopes	Semaphore	V	
			Russell	E	
WY-	0.1	Moderate stony slopes	Russell	D	
WYA	1.0	Moderate stony/sandy slopes	Russell/ Semaphore	D	
YAI	0.4	Sandy loam flats	Wookata	V	Highly calcareous sandy loams on Woorinen Formation deposits with deep sands and shallow stony soils on calcrete. Main issues are low fertility, moderate to moderately high wind erosion potential, and restricted water holding capacity / workability problems associated with shallow stony soils.
		Low sandhills	Haslam	C	
YEK	3.7	Sand spreads	Haslam	E	
		Sandy loam flats	Wookata / Shallow Wookata	E	
YcL	4.3	Stony flats	Shallow Wookata	D	
YeK	24.5	Stony flats	Shallow Wookata	E	
		Very stony flats	Calc/ Terre/ Wiabuna	E	

ZBM	0.7	Salt flats	Saline soil	V	Saline land of no agricultural value, with small stony rises, useful for limited grazing only.
		Stony rises	Calc/ Terre/ Wiabuna	C	
ZD-	4.7	Salt lakes	-	-	
ZK-	0.2	Salt flats	Saline soil	V	
		Rises	Shallow Wookata	C	

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

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