TOO Tooligie Land System

Area: 2,039.1 km^2

Landscape: Plain of Ripon / Bakara Calcrete partly overlain by shell / quartz sands (Haslam Sand), minor quartz sands (Lowan Sand) and highly calcareous silty sands (Woorinen Formation). The plains are flat with distinctive low calcrete ridges (old dune cores), but the jumbled dunes of Haslam Sand and Lowan Sand are the most distinctive features.

Annual rainfall: 350 - 400 mm average

Main soils:

Calcrete soil - **B2** (Petrocalcic, Lithocalcic Calcarosol)
Thin calcareous sandy loam to clay loam over hard Ripon / Bakara Calcrete (**B2a**), or calcreted calcarenite (**B2b**), associated with abundant surface calcrete and sheet rock.

Terre - **B3a** (Petrocalcic, Leptic Tenosol)
Thin to medium thickness red sandy loam to clay loam over sheet calcrete. Deeper (up to 60 cm) variants (**B3b**) may occur.

Haslam / Wookata - **H1a** (Hypervescent, Regolithic, Supracalcic Calcarosol)
Highly calcareous loamy sand becoming slightly more clayey and very highly calcareous with variable rubbly carbonate at depth

Minor soils:

Shallow Wookata - **A1a** (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.

Wookata - **A1b** (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.

Haslam - **H1b** (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.

Lowan - **H3** (Basic, Arenic, Bleached-Orthic Tenosol)
Thick to very thick bleached sand with a thin organically darkened surface layer, grading to a yellowish sand (often with darker lamellae), over calcrete, usually deeper than 80 cm.

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

Shallow Wiabuna - **B2c** (Petrocalcic, Supracalcic Calcarosol)
Calcareous sandy loam to sandy clay loam over carbonate rubble on sheet calcrete within 50 cm.

Summary: More than half of the land comprises calcrete plains with shallow stony calcareous and non calcareous sandy loams. Restricted waterholding capacity, and workability problems are the main issues - significant areas are non arable. Associated with these soils are moderately shallow to shallow highly calcareous sandy loams with low fertility, moderate wind erosion potential, and moderate to low waterholding capacity. Superimposed on the plains are sand spreads and jumbled sandhills of highly infertile and highly wind erosion prone calcareous sands.

Soil Landscape Unit summary: 27 Soil Landscape Units (SLUs) mapped in the Tooligie Land System

SLU	% of area	Component	Main soils	Prop#	Notes
MgB	0.3	Calcarenite rises	Shallow Wookata	E	Shallow stony soils - non arable.
			Calcrete	E	
OsE	1.1	High sandhills	Lowan	V	Dunefields where moderate to high jumbled siliceous sandhills occupy more than 30% of the land. Moderate sandhills have moderately high wind erosion potential, and high sandhills have high to extreme potential. Typical soils: Lowan: Very low fertility, moderate to high wind erosion potential, water repellent. Wiabuna: Moderately fertile calcareous sandy loam with slight wind erosion potential.
		Swales	Wiabuna	C	
OsI	0.6	Swales	Wiabuna	E	
		Moderate sandhills	Lowan	E	
QEA	0.4	Very stony flats	Calcrete	V	Shallow stony calcareous sandy loams are predominant - semi arable.
		Flats and low rises	Wookata	L	
QHA	0.1	Stony flats	Shallow Wookata	D	
R-A	12.1	Very stony flats - sheet rock	Calcrete	D	Shallow non calcareous sandy loams to sandy clay loams are predominant with varying proportions of calcareous sand as spreads or jumbled dunes. 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 waterholding capacity and surface stone / sheet rock. Haslam / Wookata: Moderately deep calcareous loamy sand with low fertility and moderate wind erosion potential. Haslam: Deep calcareous sand with very low fertility and high to extreme wind erosion potential.
R-Ar	7.4	Very stony flats	Calcrete / Terre	E	
		Very stony low ridges	Calcrete / Terre	E	
		Sandspreads	Haslam / Wookata	L	
RBA	2.5	Very stony flats	Calcrete	E	
		Sand spreads	Haslam / Wookata	E	
RUA	0.04	Very stony flats	Calcrete / Terre	V	
		Stony flats	Terre	C	
RVA	11.7	Very stony flats	Calcrete / Terre	V	
		Sandspreads	Haslam / Wookata	C	
RVAj	7.6	Very stony flats	Calcrete / Terre	V	
		Mod to high sandhills	Haslam	C	
RZA	0.1	Very stony flats	Calcrete / Terre	D	
RZB	17.8	Very stony rises	Calcrete / Terre	D	
RZE	0.8	Very stony depressions	Calcrete / Terre	D	
SKA	0.4	Stony flats	Shallow Wiabuna	V	Calcareous sandy loams of moderate fertility but restricted waterholding capacity, with moderately deep calcareous sands (Haslam / Wookata as above). Some flats are non arable (too stony).
		Low sand rises	Haslam / Wookata	L	
SLA	0.1	Stony flats	Shallow Wiabuna	V	
		Very stony flats	Calcrete	C	
YHK	4.1	Sand spreads and rises	Haslam / Wookata	V	Very gently undulating flats with highly calcareous sandy loams, and occasional very stony patches, with calcareous sand deposits varying from sand spreads and low sandhills through to moderate or high jumbled sandhills. Typical soils: Wookata: Highly calcareous sandy loam with slightly limited waterholding capacity, low fertility and slight to moderate 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.
		Flats	Wookata	L	
YID	1.5	High to moderate sandhills	Haslam	E	
		Flats	Wookata	E	
YIE	1.5	Moderate to high sandhills	Haslam	V	
		Stony flats	Shallow Wookata	E	
YIH	6.2	Moderate to high sandhills	Haslam	E	
		Stony flats	Shallow Wookata	E	
YIK	2.3	Sand spreads and rises	Haslam / Wookata	E	
		Flats	Wookata	E	
YKL	1.2	Sandspreads and rises	Haslam / Wookata	D	

YMI	0.3	Flats	Wookata	V	Haslam / Wookata: Moderately deep calcareous loamy sand with low fertility and moderate wind erosion potential. Haslam: Deep calcareous sand with very low fertility and high to extreme wind erosion potential. Calcrete: Very shallow stony sandy loam associated with more than 50% sheet calcrete. Low fertility, high wind erosion potential and low soil waterholding capacities are the characteristics of these units.
		Moderate to high sandhills	Haslam	E	
YNG	0.4	Flats	Wookata	V	
		High to moderate sandhills	Haslam	C	
YfK	3.8	Flats	Wookata	V	
		Sandspreads and rises	Haslam / Wookata	C	
YgK	6.0	Flats	Wookata	E	
		Low to moderate sandhills	Haslam	E	
YhK	9.7	Stony flats	Shallow Wookata	E	
		Very stony flats	Calcrete	E	
		Sand spreads and rises	Haslam / Wookata	E	

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