MAV Maryvale Land System

Area: 1,145.6 km^2

Landscape: Plains and gently undulating rises formed on Ripon / Bakara Calcretes, partly overlain by very highly calcareous silts (Woorinen Formation) and highly calcareous sands (Lowan Sand), with occasional siliceous sand (Molineaux Sand). Moderate to heavy surface stone and sheet calcrete are features of the landscape.

Annual rainfall: 325 – 390 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 (shallow) - **A1/B1** (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 - **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.
Wookata (sandy) - **A1b** (Supravescent, Hypercalcic / Lithocalcic Calcarosol)
Very highly calcareous (more than 40% $CaCO_3$) soft sand to loamy sand grading to very highly calcareous sandy loam with variable rubble content.
Haslam - **H1** (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.
Magarey - **A1c** (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.
Moornaba - **H2** (Calcareous, Arenic, Brown-Orthic Tenosol / Regolithic, Calcic Calcarosol)
Very thick red to brown sand, becoming weakly calcareous and often grading to an orange clayey sand with depth, overlying variable carbonate (fine to rubbly, occasionally sheet).
Heggaton - **G3** (Calcic, Brown Chromosol)
Thick sand to loamy sand with a bleached A2 layer, abruptly overlying a weakly structured brown sandy clay to clay, calcareous with depth, grading to Tertiary sediments.
Saline soil - **N2** (Salic / Hypersalic Hydrosol)
Miscellaneous wet saline soil influenced by rising saline groundwater tables.

Summary: The flats and rises of this landscape are dominated by shallow soils over calcrete, the majority of which are non arable. Mixed with them are highly calcareous sandy loams, mostly arable, with marginal fertility and waterholding capacity, and some potential for wind erosion. Moderately deep to deep sandy soils occur sporadically. These are infertile and prone to serious wind erosion.

Soil Landscape Unit summary: 24 Soil Landscape Units (SLUs) mapped in the Maryvale Land System:

SLU	% of area	Component	Main soils	Prop#	Notes
GGA	0.5	Sandy flats	Heggaton	D	Deep marginally fertile sandy soil with moderate wind erosion potential.
QnA	0.3	Very stony flats	Calcrete / Terre	V	Stony flats and rises formed on calcrete, which is near the surface over most of the area. Shallow stony soils are dominant, but there are minor occurrences of several deeper soils. Main 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. 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. Shallow Wookata As for Wookata, except that waterholding capacity is reduced, and surface stone is increased to the point where it interferes with tillage. Sandy Wookata As for Wookata, but sandier with higher wind erosion potential. Most of the land is non arable and used for rough grazing. Cropping is restricted to the deeper soils.
		Flats	Wookata	E	
R-A	71.8	Stony flats	Terre / Calcrete	D	
		Sandy rises	Haslam	M	
R-Ar	8.3	Stony flats with low ridges	Terre / Calcrete	D	
RBA	2.8	Very stony flats	Terre / Calcrete	V	
		Sandy flats	Sandy Wookata	L	
RCA	3.6	Stony flats	Terre / Calcrete	V	
		Flats	Shallow Wookata	L	
REA	0.2	Very stony flats	Calcrete / Terre	V	
		Flats	Wookata	C	
RUA	0.1	Stony flats	Terre / Calcrete	D	
		Flats	Wookata	M	
RUB	0.1	Stony rises	Terre / Calcrete	D	
		Rises	Wookata	M	
RVK	2.5	Stony flats with minor salinity	Terre / Calcrete	V	
		Sand spreads	Haslam	L	
RZA	1.4	Stony flats	Terre / Calcrete	D	
RZE	<0.1	Stony depressions	Terre / Calcrete	D	
VFA	<0.1	Old lake	-	D	-
YAL	1.2	Flats	Wookata / Magarey	D	Flats and rises formed on very highly calcareous Woorinen Formation materials. Stony soils are much less prevalent than in the R** units. The predominant Wookata soils are marginally fertile due to their high carbonate content, have somewhat restricted waterholding capacities, and are susceptible to wind erosion. The other main soils are as listed above. Additional soils include Magarey (a loamier variant of Wookata), and Moornaba, a siliceous (although with some carbonate throughout) sand of low fertility and high wind erosion potential.
YEK	0.8	Flats	Wookata	V	
		Low sandhills	Moornaba	C	
YFL	1.9	Flats	Wookata	V	
		Stony flats	Shallow Wookata	L	
YIL	0.5	Sandy flats	Haslam	V	
		Flats	Wookata	C	
YLL	0.9	Flats	Wookata	E	
		Stony flats	Shallow Wookata	C	
		Sand spreads	Haslam	C	
YOL	<0.1	Flats	Wookata	V	
		Sand spreads	Haslam	C	
YPp	0.2	Rises	Wookata	V	
		Stony rises	Shallow Wookata	C	
YbL	0.2	Flats	Wookata	E	
		Stony flats	Shallow Wookata	E	
		Sand spreads	Haslam	C	
YcL	1.2	Flats	Wookata	V	
		Stony flats	Shallow Wookata	E	
YdL	1.1	Stony flats	Shallow Wookata	V	
		Flats	Wookata	C	
ZD-	0.4	Salt flat	Saline soil	D	Highly saline - no productive potential.

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