MTV Mitchellville Land System

Area: 821.2 km^2

Landscape: Plain formed on calcreted Wiabuna Formation (highly calcareous aeolian deposits), and overlain by low to moderate parallel siliceous sandhills.

Annual rainfall: 255 – 285 mm average

Main soils:

Mitchellville - **B2a** (Petrocalcic Calcarosol)
Calcareous light sandy loam to light sandy clay loam with variable nodular calcrete, over rubbly or sheet calcrete.

Moornaba - **H2** (Calcareous, Arenic, Brown-Orthic Tenosol)
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).

Rubbly Wiabuna - **A4** (Regolithic, Supracalcic Calcarosol)
Calcareous sandy loam grading to a rubbly very highly calcareous sandy clay loam over light clay from about 100 cm.

Shallow Wiabuna - **B2b** (Petrocalcic, Lithocalcic / Supracalcic Calcarosol)
Calcareous sandy clay loam over carbonate rubble on sheet calcrete within 50 cm.

Sandy Wiabuna - **H2/A4** (Regolithic, Supracalcic Calcarosol)
Thick calcareous loamy sand, slightly more clayey with depth, grading to carbonate rubble.

Minor soils:

Semaphore - **H1/H3** (Shelly Rudosol)
Very thick sand comprising mixed shell and quartz grains.

Yamba - **N2** (Hypersalic Hydrosol)
Variable highly saline sand and clay of coastal flats and swamps.

Summary: The landscape is characterized by stony flats and low parallel sandhills. The predominant soils of the flats are calcareous loamy sands to sandy loams, shallow over rubbly or sheet calcrete. Low waterholding capacity is the main limitation, although in places calcrete reefs prevent cultivation altogether. These soils are generally light textured and susceptible to wind erosion. Moderate to deep sands characterize the sandhills. These have low fertility and are highly susceptible to wind erosion, given the low rainfall. Water repellence is sometimes a problem.

Soil Landscape Unit summary: 13 Soil Landscape Units (SLUs) mapped in the Mitchellville Land System:

SLU	% of area	Component	Main soils	Prop#	Notes
QBA	6.4	Stony flat	Mitchellville	D	Shallow stony soil, limited waterholding capacity, commonly non-arable.
QOA	11.8	Stony flat	Mitchellville	V	Flats as for QBA, with 20-30% low sandhills of low fertility and prone to wind erosion.
		Low sandhill	Moornaba	C	
QZB	0.2	Stony flat	Mitchellville	V	Non-arable calcrete flats.
		Calcrete	Mainly sheet rock	C	
SMA	1.8	Flat	Shallow / rubbly Wiabuna	E	Calcareous sandy soils with moderate water holding capacity - fully arable.
			Mitchellville	E	
			Sandy Wiabuna	L	
SUA	15.9	Flat	Mitchellville	E	Flats as for SMA, with 10-20% low sandhills as in UMJ.
			Shallow / rubbly Wiabuna	E	
			Sandy Wiabuna	L	
		Low sandhill	Moornaba	L	
SgA	1.1	Flat	Mitchellville	E	As for SUA, but with 20-30% low sandhills.
			Shallow / rubbly Wiabuna	E	
			Sandy Wiabuna	L	
		Low sandhill	Moornaba	C	
UMI	15.3	Low / moderate sandhill	Moornaba	E	Approximately equal proportions of flats as for SMA, and low to moderate sandhills with moderate to high wind erosion potential.
		Flat	Shallow / rubbly Wiabuna	E	
			Mitchellville	E	
			Sandy Wiabuna	M	
UMJ	22.3	Low sandhill	Moornaba	E	As for UMI, but sandhills are smaller and less extensive.
		Flat	Shallow / rubbly Wiabuna	E	
			Mitchellville	E	
			Sandy Wiabuna	M	
UUJ	15.1	Flat	Mitchellville	E	As for UMI, but sandhills are smaller, and occupy only 30-40% of the area.
			Shallow / rubbly Wiabuna	E	
			Sandy Wiabuna	M	
		Low sandhill	Moornaba	E	
WFH	3.4	Mod / high coastal dune	Semaphore	E	Complex of coastal sandhills (highly infertile and extremely susceptible to wind erosion) and saline flats. No agricultural value.
		Salt flat	Yamba	E	
WM-	0.3	Mangrove swamp	-	D	Potentially acid sulfate soils.
WR-	6.4	Salt flat	Yamba	V	Potentially acid sulfate flats with fragile dunes.
		Mod / high coastal dune	Semaphore	L	
ZC-	<0.1	Salt flat	Yamba	D	Potentially acid sulfate flats.

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