

MSA Mount Salt Land System

Area:	225.0 km ²
Landscape:	Stony undulating plain with numerous sinkholes S-SE of Mt. Gambier, with extensive Miocene limestone outcrop.
Annual rainfall:	745 – 770 mm average
Geology:	Gambier Limestone; Eocene-Miocene fossiliferous marine limestone.
Main soils:	B3 (43%) Shallow sandy loam on calcrete (Petrocalcic Red Tenosol-Kandosol-Rudosol)
Minor soils:	<p>B7 (13%) Shallow sand over clay on calcrete (sandy Petrocalcic Sodosol-Chromosol)</p> <p>RR (12%) Bare limestone</p> <p>F1 (8%) Loam over brown or dark clay Brown-Dark (Chromosol-Sodosol)</p> <p>4% each of:</p> <p>F2 Sandy loam over poorly structured brown or dark clay (Brown-Dark Sodosol-Chromosol)</p> <p>G2 Thick sand over clay (sandy Brown-Red Chromosol)</p> <p>B2 Shallow calcareous loam on calcrete (Petrocalcic Calcarosol-Rudosol)</p> <p>H3 Bleached siliceous sand (sandy Bleached Tenosol)</p>
Summary:	Soils are: mainly terra rossa or flints over limestone, sometimes with sand or sand/clay, but the land is mostly non-arable.

Soil Landscape Unit summary: Mount Salt Land System (MSA)

SLU	% of area	Component	Main soils	Prop#	Notes
m-A	11.2	Plain	B3RR	D	Calcrete-capped Miocene limestone. Very shallow red loam on clay loam over rock. m-A Plain m-AK Karstic plain with numerous sink-holes. m-B Gently undulating rises and plains. Main soils: Plains and Rises: <u>Shallow sandy loam on calcrete</u> - B3 and <u>Rock or exposed calcrete</u> - RR .
m-AK	1.2	Plain	RRB3	D	
m-B	5.7	Rise Plain	B3RR B3RR	V E	
mAB	1.7	Plain Swampy swales	B5B3 N1N3	V C	Gently undulating plain with shallow soils on Miocene limestone. Parallel dune forms east of Allendale East. 20-30% swampy swales. Main soils: Plains: <u>Shallow dark clay loam on limestone</u> - B5 and <u>Shallow loam on calcrete</u> - B3 . Swampy swales: <u>Peaty soil</u> – N1 and <u>Wet clay loam</u> - N3 .
mFA	3.3	Plain	F2	D	Calcrete-capped Miocene limestone with less than 50% bare calcrete. Soils are mainly loamy Petrocalcic, Red Kandosols, Tenosols and Chromosols with <10% deep sandy Tenosols-Podosols. mFA Plain and very low rises with moderately deep loam over dispersive clay on marl overlying limestone. mFAK as above with sinkholes/karst features. mFB gently undulating low rises. Main soils:
mFAK	7.1	Plain	B3	D	
mFB	1.8	Rise	B7	D	



					<p>Plains: <u>Sandy loam over poorly structured brown or dark clay - F2</u> and <u>Shallow loam on calcrete - B3</u>.</p> <p>Rises: <u>Sand over friable brown clay on calcrete - B7</u>.</p>
mTA	23.4	Plain	B3B7F1	D	<p>Plains with flinty loam over poorly structured brown clay over Miocene limestone. Shallow red loamy soil on rises.</p> <p>Main soils:</p> <p>Plains: <u>Shallow loam on calcrete - B3</u>, <u>Sand over friable brown clay on calcrete - B7</u> and <u>Loam over brown or dark clay - F1</u>.</p> <p>Rises: <u>Sand over friable brown clay on calcrete - B7</u>.</p>
		Rise	B7	M	
mUA	19.7	Plain	B3	D	<p>Plains with very dark brown sandy loam on brown sandy clay loam over Miocene limestone.</p> <p>mUA Plain with very dark brown sandy loam on brown sandy clay loam over Miocene limestone.</p> <p>mUA_v as above, overlain with volcanic ash.</p> <p>Main soils: <u>Shallow sandy loam on calcrete - B3</u>.</p>
mUA _v	0.7	Plain	B3	D	
mWA	1.6	Plain	F2	D	<p>Plains associated with calcreted Miocene limestone materials i.e. calcreted Gambier Limestone. Less than 50% bare calcrete. Soils are mainly red, brown or black Sodosols on calcarenite with shallow loamy red Tenosols & deeper sandy yellow Tenosols or Podosols on sandy rises.</p> <p>mWA Plains with loam over poorly structured brown clay</p> <p>mWBF Gently undulating plains with flinty loam over poorly structured brown clay, <10% sand rises.</p> <p>Main soils:</p> <p>Plains: <u>Sandy loam over poorly structured brown or dark clay - F2</u> and <u>Sand over friable brown clay on calcrete - B7</u>.</p> <p>Sandy rises: <u>Thick sand over clay - G3</u>.</p>
mWBF	3.4	Plain	B7F2	D	
		Sand Rise	G3	M	
mzA	0.5	Plain	B3RR	D	<p>Stony plain with very shallow calcareous loams over clay on limestone. Rock outcrop.</p> <p>Main soils: <u>Shallow sandy loam on calcrete - B3</u> and <u>Rock or exposed calcrete - RR</u>.</p>
MAC	0.4	Rise	B3RR	D	<p>Undulating calcreted former beach ridge with very shallow red and brown loamy over red clay soils.</p> <p>Main soils: <u>Shallow sandy loam on calcrete - B3</u> and <u>Rock or exposed calcrete - RR</u>.</p>
MBB	3.6	Rise	B3B7	V	<p>Gently undulating calcreted former beach ridge with shallow sandy loam over red or brown clay soils.</p> <p>Main soils:</p> <p>Rises: <u>Shallow sandy loam on calcrete - B3</u> and <u>Sand over friable brown clay on calcrete - B7</u>.</p> <p>Swales: <u>Shallow sandy loam on calcrete - B3</u>.</p>
		Swale	B3	L	
MEYB	0.4	Stony range	B3RR	D	<p>Undulating, stony calcreted medium height dune forms with much bare calcrete and very shallow loamy soils.</p> <p>Main soils: <u>Shallow sandy loam on calcrete - B3</u> and <u>Rock or exposed calcrete - RR</u>.</p>
MKB	10.5	Rise	G2H3	V	<p>Undulating calcreted former beach ridge with very shallow red and brown loamy over red clay soils, 10-20% deep leached sand rises and occasional swampy flat. Less than 50% bare calcrete.</p> <p>Main soils:</p> <p>Rises: <u>Bleached sand over sandy clay loam - G2</u> and <u>Bleached siliceous sand - H3</u>.</p> <p>Dunes: <u>Highly leached sand - I1</u>.</p> <p>Swamps: <u>Wet clay loam - N3</u>.</p>
		Dune	I1	L	
		Swamp	N3	M	



MOBv	0.1	Rise	B6B3	D	Gently undulating calcreted former beach ridge with shallow sandy loam over red or brown clay soils. Soils have volcanic ash in surface horizons. Main soils: <u>Shallow sandy loam over red-brown clay on calcrete</u> - B6 and <u>Shallow sandy loam on calcrete</u> - B3 .
MRC	0.2	Rise	G3	D	Undulating calcreted former beach ridge with very shallow red and brown loam/red clay soils, < 10% deep leached sand or sand/clay rises. Main soils: <u>Thick sand over clay</u> - G3 .
MUB	0.6	Rise	B3B1	D	Shallow, dark brown sandy loam over calcrete, often with brown clay loam subsoil. MUB gently undulating rises MUD rolling rises (with very shallow soils). Main soils: <u>Shallow sandy loam on calcrete</u> - B3 and <u>Shallow highly calcareous sandy loam on calcrete</u> - B1 .
MUD	0.3	Rise	B3B1	D	
NJA	0.2	Plain	B5A7	D	Inter-dune corridor plain with deep dark clay soils on calcreted marl or limestone often calcareous throughout. Main soils: Plains: <u>Shallow dark clay loam on limestone</u> - B5 and <u>Calcareous clay loam on marl</u> - A7 . Swamps: <u>Wet clay loam</u> - N3 and <u>Peaty soil</u> - N1 .
		Swamp	N3N1	M	
PHa	0.6	Plain	I2G3H3	V	Sand plain with poorly drained sand or sand/clay. 20-30% dunes with leached siliceous sand soils. Main soils: Plains: <u>Wet highly leached sand</u> - I2 , <u>Thick sand over clay</u> - G3 and <u>Bleached siliceous sand</u> - H3 . Dunes: <u>Highly leached sand</u> - I1 ; <u>Bleached siliceous sand</u> - H3 .
		Dune	I1H3	C	
VcW	1.0	Plain	B4	D	Shallow coastal plain with shallow flinty red sandy loam over calcrete. Rock outcrop on rises. Main soils: Plains: <u>Shallow red loam on limestone</u> - B4 . Rises: <u>Shallow sandy loam on calcrete</u> - B3 and <u>Rock or exposed calcrete</u> - RR .
		Rise	B3RR	M	
VdA	0.4	Plain	B7	D	Shallow coastal plain with sand over poorly structured clay on limestone with wet, non-peaty swamps. Main soils: <u>Sand over friable brown clay on calcrete</u> - B7 .
Xr	0.1	River	WW	D	Glenelg River.

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)

Detailed soil profile descriptions:

- A7** Calcareous clay loam on marl (Marly Calcarosol)
Dark calcareous clay with a marly subsoil (often saline in Upper SE). Often with shells and a peaty surface.
- B1** Shallow highly calcareous sandy loam on calcrete (Supravescant-Shelly Petrocalcic Calcarosol-Rudosol)
Shallow, carbonate dominant sandy to loamy soil on calcrete. Carbonate dominates the soil profile as a whole, however, the surface soil may not be carbonate dominant, but needs to contain at least 30% carbonate.
- B3** Shallow sandy loam on calcrete (Petrocalcic Rudosol)
Medium thickness non calcareous sandy loam, often having a slight clay increase with depth, over calcreted calcarenite shallower than 50 cm - rises.



- B4** Red sandy loam over calcrete (Petrocalcic, Red Dermosol)
Medium thickness red sandy loam grading to friable red clay loam over calcreted calcarenite within 50 cm - rises.
- B5** Shallow dark clay loam on limestone (Petrocalcic, Black Dermosol)
Black clay loam to light clay over calcreted limestone at shallow depth, grading to highly calcareous clay - flats.
- B6** Shallow sandy loam over red-brown clay on calcrete (Petrocalcic, Red Kandosol)
Medium thickness sandy loam with slight ironstone gravel overlying a weakly structured reddish brown sandy clay on calcarenite within 50 cm - rises.
- B7** Shallow sand over sandy clay on calcrete (Petrocalcic, Brown Chromosol)
Medium thickness sand overlying brown friable sandy clay to clay on limestone or calcreted sandy clay within 50 cm - flats.
- F1** Loam over brown or dark clay (Brown-Dark Chromosol-Sodosol)
Topsoil >30 cm over a poorly structured subsoil, or else, subsoil structure is good. Loamy to clay loamy texture contrast soil with brown clayey subsoil. Loamy, reasonable depth A, and OK structured clay subsoil.
- F2** Sandy loam over poorly structured brown or dark clay (Brown-Dark Sodosol-Chromosol)
Topsoil <30 cm over a poorly structured subsoil. Loamy, often sandy loam, to clay loamy texture contrast soil with a sodic/dispersive/poorly structured brown clayey subsoil. Often sandy loam, usually with a bleached horizon, and thin topsoil over a poorly structured B.
- G2** Bleached sand over sandy clay loam (sandy Brown-Red Chromosol)
Sandy texture contrast soil with a bleached A2 and a friable brown-red sandy clay loam to sandy loam subsoil.
- G3** Thick sand over clay (Hypercalcic, Brown Sodosol/ Chromosol)
Thick bleached sand with an organically darkened surface abruptly overlying a massive to coarsely structured brown to reddish yellow sandy clay to clay, calcareous with depth - rises.
- H3** Deep bleached sand (Basic, Arenic, Bleached-Orthic Tenosol)
Grey sand over a very thick bleached sand grading to yellow sand continuing below 100 cm.
- I1** Highly leached sand (Fragic, Pipey, Aeric Podosol)
Grey sand with a very thick bleached A2 layer, over dark brown and yellow massive soft to semi-hard clayey sand (coffee rock), grading to softer yellow and brown sand to sandy clay loam from about 80 cm.
- I2** Wet highly leached sand (Fragic, Humic, Aquic Podosol)
Grey sand with a thick bleached A2 horizon, overlying a thin to thick layer of coffee rock, grading to pale brown sand sharply overlying a grey, brown and yellow mottled sandy clay loam to light clay.
- N1** Peat (Organosol)
Peaty soil.
- N3** Seasonally waterlogged, non to marginally saline equivalents of soils listed above, viz.:
N3c Wet **G3**
N3d Wet **B5**
N3e Wet **B7**
- RR** Bare rock.
- WW** Water.

Further information: [DEWNR Soil and Land Program](#)

