

PTS Point Sturt Land System

Area: 34.5 km²

Annual rainfall: 400 – 550 mm average

Geology: The landscape is formed on calcreted calcarenites of the Bridgewater Formation. Bridgewater Formation comprises old coastal dunes in which the calcareous sands have been consolidated over a long period of time to form a material called "calcarenite". Prolonged exposure of the surface to the atmosphere has resulted in a hard sheet or rubbly calcrete capping to the calcarenite. Recent deposition of aeolian sands over the top of the calcrete has occurred intermittently throughout. In depressions between the rises are thin deposits of lake bed (lacustrine) clays and limestones which originated when the lakes inundated the lower lying land during the last high sea level stand.

Topography: The Land System comprises undulating to gently rolling rises with no defined surface drainage. There is extensive surface calcrete where the calcarenite is close to the surface. Sand spreads which overlie the calcarenite are sometimes reworked into linear sandhills.

Elevation: 0 to 30 m

Relief: Up to 25 m

Soils: Main soils: shallow loamy sands over calcreted calcarenite, deep sands, or various heavier soils over lacustrine sediments

Main soils

Shallow soils formed on calcreted calcarenite

- B2** Shallow calcareous loamy sand
- B3** Sandy loam over thin red clayey subsoil
- B8** Shallow bleached sand

Moderately deep to deep sandy soils

- H3** Deep bleached sand
- H2** Thick sand over clayey sand

Minor soils

Moderately deep to deep sandy soils

- G2** Thick sand over sandy clay loam
- Saline soils formed on lake bed sediments*

- N2/E1** Black, wet clay
- N2/F2** Sandy loam over black clay
- N2/A7** Marly calcareous sandy loam

Shallow soils formed on calcreted calcarenite

- B7** Sand over brown sandy clay

Main features: The Point Sturt Land System is undulating land with mixed shallow sandy to loamy soils over calcrete, and moderately deep to very deep sands. The shallow soils are moderately fertile but their productivity is limited by low water holding capacity. The deeper sands are infertile and prone to water repellence and wind erosion. Depressions between the rises are sometimes marginally saline.



Soil Landscape Unit summary: 9 Soil Landscape Units (SLUs) mapped in the Point Sturt Land System:

SLU	% of area	Main features #
MfB	1.6	Gentle slopes underlain by calcarenite buried by variable thicknesses of sand. Main soil is <u>thick sand over sandy clay loam</u> - G2 (D). These soils are deep but inherently infertile and prone to water repellence and wind erosion.
MvE Mve	2.6 0.9	Lower slopes and depressions between stony rises. Slopes are less than 4%. As on the rises, these low lying areas are underlain at shallow depth by Bridgewater Formation calcarenite. There is extensive surface calcrete stone and sheet rock. MvE Well drained depressions. Mve Depressions with impeded drainage and marginal salinity. Main soils: <u>shallow calcareous loamy sand</u> - B2 (E), <u>shallow bleached sand</u> - B8 (E) and <u>sand over brown sandy clay</u> - B7 (E). These areas generally have greater soil depth than the stony rises and consequently greater productive capacity, but marginal fertility and variable soil depth are significant limitations. Salinization is a threat.
MyB	30.0	Undulating rises formed on calcareous sands of the Bridgewater Formation, where sand deposition, as dunes and spreads, is significant. The presence of the sand is the difference between MyB and MzB . Rocky areas occur, but are much less significant than in MzB . Slopes are up to 10% and maximum relief is 20 metres. The soils include shallow and stony sands overlying calcrete, sand over clay soils and deep sands. Main soils: <u>shallow bleached sand</u> - B8 (C) and <u>shallow calcareous loamy sand</u> - B2 (L) shallow over calcrete, and <u>thick sand over sandy clay loam</u> - G2 (C), <u>deep bleached sand</u> - H3 (L) and <u>thick sand over clayey sand</u> - H2 (L) in sandy areas. Soil variability across short distances is high, depending on the thickness of overblown sand. All soils are well drained, but the shallow soils have moderate to severe limitations caused by lack of moisture holding capacity, while the deeper sands have low inherent fertility.
MzB	29.3	Undulating rises formed on calcareous sands of the Bridgewater Formation. Slopes are up to 10% and relief is less than 20 metres. There is extensive surface calcrete stone and sheet rock. Soils are generally shallow and calcareous over sheet calcrete. Main soils: <u>shallow calcareous loamy sand</u> - B2 (E) and <u>sandy loam over thin red clayey subsoil</u> - B3 (E). Lack of moisture holding capacity and surface stone are the main limitations to agricultural production.
O-B	22.2	Jumbled to longitudinal dunes. They are underlain by loose aeolian medium to coarse sands or soft to hard carbonate (usually deeper than 100 cm). The soils are predominantly deep sands, with variable slightly clayey and / or calcareous layers at depth. Main soils: <u>deep bleached sand</u> - H3 (E) and <u>thick sand over clayey sand</u> - H2 (E), with <u>shallow calcareous loamy sand</u> - B2 (L) and <u>shallow bleached sand</u> - B8 (L) on stony areas. These soils are infertile and prone to water repellence and wind erosion.
Vr-	0.4	Reed beds.
Vt-	0.5	Narrow, discontinuous sections of beach on the shores of Lake Alexandrina. Soils are mostly deep, white to pale brown coarse sands. These areas have no agricultural significance.
ZB-	12.5	Flats and swamps formed on lacustrine clays laid down under the waters of Lake Alexandrina during the most recent high sea level. These sediments are usually thin, overlying buried soils typical of the surrounding higher ground, which at the time, was inundated by the lake. Much of the land is seasonally inundated. Samphire with occasional salt water tea tree is the common vegetation, but much of the land is bare. The soils are dark, commonly clayey and generally alkaline and saline. Main soils: <u>black wet clay</u> - N2/E1 (E), <u>sandy loam over black clay</u> - N2/F2 (E) and <u>marly calcareous sandy loam</u> - N2/A7 (E). This land generally has low productivity due to widespread waterlogging and salinity. However, with appropriate species establishment and management, pasture productivity can be improved.

PROPORTION codes assigned to soils within Soil Landscape Units (SLU):

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| (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:

- B2** Shallow calcareous loamy sand (Petrocalcic Calcarosol)
Medium thickness brown calcareous loamy sand to sandy loam, with abundant calcrete fragments, overlying sheet calcrete up to 100 cm thick, grading to very highly calcareous partially indurated shell sand.
- B3** Sandy loam over thin red clayey subsoil (Petrocalcic, Red Chromosol / Kandosol)
Medium thickness reddish brown soft sandy loam, overlying a red brown massive sandy clay loam to sandy clay on sheet calcrete at 30 cm.
- B7** Sand over brown sandy clay (Petrocalcic / Lithocalcic, Brown / Black Sodosol)
Medium thickness grey sand with a paler coloured or bleached A2 layer, abruptly overlying a massive brown or black and grey mottled sandy clay loam to clay over rubble or sheet calcrete within 50 cm.
- B8** Shallow bleached sand (Petrocalcic, Bleached-Leptic Tenosol)
Medium thickness greyish brown loose sand with a bleached A2 horizon containing minor calcrete fragments, overlying sheet calcrete.
- G2** Thick sand over sandy clay loam (Calcic / Lithocalcic, Brown Sodosol)
Very thick pale brown loose sand, overlying a yellowish brown and red mottled clayey sand to light sandy clay loam, grading to a sandy clay loam with soft to rubble Class III carbonate from 85 cm. The profile becomes sandier with depth.
- H2** Thick sand over clayey sand (Calcareous, Regolith, Brown-Orthic Tenosol)
Very thick brown sand to loamy sand, overlying a thin layer of orange clayey sand on soft to rubble Class III carbonate.
- H3** Deep bleached sand (Basic, Regolith, Bleached-Orthic Tenosol)
Very thick white loose sand, organically darkened at the surface, overlying a yellow loose sand, grading to a pale brown sand from 125 cm.
- N2/A7** Marly calcareous sandy loam (Calcarosolic, Salic Hydrosol / Regolith or Marly, Lithocalcic Calcarosol)
Medium thickness black moderately calcareous loam to fine sandy clay loam, overlying shellgrit, semi-hard limestone or soft marl, grading to highly calcareous grey clay. Buried sand over clay soil at 50 cm.
- N2/E1** Black wet clay (Salic, Pedal, Aquic Vertosol)
Medium thickness black clay with coarse blocky structure, overlying a dark grey heavy clay with coarse prismatic structure, grading to a buried sand over clay soil at 50 cm.
- N2/F2** Sandy loam over black clay (Sodosolic, Salic Hydrosol / Calcic, Black Sodosol)
Medium thickness dark grey loamy sand to sandy clay loam, overlying a black sandy clay to heavy clay with coarse prismatic structure, grading to a buried sand over clay soil at 50 cm.

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

