MOG Mount Gore Land System

Mostly rising land consisting of gently undulating rises and plains. This land is mostly higher elevation than adjacent land to the east and west. The main part of the system is on a largely north-south running rise, which is similar to that of the Warooka land system in the east. However, the soils in this system are much more likely to be underlain by calcrete, and generally have higher levels of fine carbonate.

Area: 49.6 km^2

Landscape: Highly calcareous loamy to sandy deposits blanket underling bedrock rises. Gently undulating rises and plains occupy the higher ground, and gently undulating to level plains, slopes, and shallow depressions/valleys occupy the mid to lower ground. The majority of the soils are underlain by calcrete (calcreted calcarenite of inland jumbled dune Bridgewater Formation). Numerous non arable very stony low rises occur: these are mostly relict dunes. A Blanchetown equivalent clay was described in a few low lying areas: it is likely that such heavy clay underlies much of this system at depth.

Annual rainfall: 410 – 480 mm average

Main soils:

B1a *Shallow highly calcareous loams on calcrete* [Supravescent Petrocalcic Calcarosol]
B1b *Shallow carbonate loamy sands on calcrete* [Petrocalcic Shelly Calcarosol]
A1 *Highly calcareous loams* [Supravescent Hypercalcic-Lithocalcic Calcarosol]
H1 *Carbonate sands* [Shelly Calcarosol]

Minor soils:

B2 *Shallow calcareous loams on calcrete* [Hypervescent Petrocalcic Calcarosol]
A4 *Calcareous loams* [Hypervescent Hypercalcic-Lithocalcic Calcarosol]
A6 *Gradational calcareous clay loams* [Hypervescent-Epihypersodic Hypercalcic Calcarosol]

Main features: Most soils are highly calcareous, being dominated by carbonate particles, and are either loamy or sandy. The majority of soils are shallow or very shallow. There are a number of patches where soils are too shallow to be cropped. Nutrient imbalances caused by the high fine carbonate contents occur, particularly with manganese, phosphorus and zinc. Raised subsoil salinity levels are relatively common, especially in lower lying areas. Relatively high levels of the toxic elements boron and sodium are likely to occur at moderate depth in many soils, especially when subsoil textures are clay loamy to clayey. Most surface soils have potential for wind erosion, especially when sandy. Some soils are water repellent, especially those with sandy textures.

Soil Landscape Unit summary: Mount Gore Land System (MOG)

SLU	% of area	Main features #
QHA QHA1 QHL	4.3 4.5 1.9	Dominantly shallow highly calcareous loams and sandy loams on calcrete. Main soils: *shallow highly calcareous loam to sandy loam on calcrete* (soil **B1a**-**B2**). **QHA** – gently undulating stony plains (slopes 0-1%, 2s, approx. 10% outcrop, 4r, 2-3a). **QHA1** – mostly non arable very stony rises, low rises or plains (slopes 0-1.5%, 2-1s, 5-4r, 2a). **QHL** – slopes with some saline seepage (slopes 1-3.5%, 2-1e, 2-3s, 2-10% outcrop, 4r, 2-3a).
QKK	8.2	Mostly shallow highly calcareous sandy loams on calcrete. Main soils: *shallow highly calcareous sandy loam on calcrete* (soil **B1a**-**B2**). With some *deep highly calcareous sandy loam* (soil **A1**-**A4**). **QKK** – gently undulating plains (slopes 0-1.5%, 2s, 0-5% outcrop, 3r, 3-2a).
QMA QMB QML QMK QMZ	27.1 2.3 1.7 2.2 0.6	Mostly shallow highly calcareous loams on calcrete. Main soils: *shallow highly calcareous loam to sandy loam on calcrete* (soil **B1a**-**B2**). With some *deep rubbly highly calcareous loam to sandy loam* (soil **A1**-**A4**). **QMA** – gently undulating low rises (slopes 0-2%, 2s, 0-10% outcrop, 3r, 2-3a). **QMB** – slopes (slopes 1-3.5%, 2-1e, 1-2s, 3r, 2-3a). **QML** – very gentle slopes with some saline seepage (slopes 1-2.5%, 2-1e, 2-3s, 3r, 2-3a). **QMK** – relatively low lying gently undulating to level plains with some saline seepage (slopes <1%, 2-3s, 3r, 2-3a). **QMZ** – Mt Gore summit surface: gently undulating to level plain (highest elevation at 101m, slopes 0-1%, 1-2s, 3r, 2-3a).
QLO QLT	18.4 0.2	Mostly shallow highly calcareous loams and clay loams on calcrete. Main soils: *shallow highly calcareous loam to clay loam on calcrete* (soil **B1a**-**B2**). With some *deep rubbly highly calcareous loam to clay loam* (soil **A1**-**A4**). And with some *gradational calcareous clay loams* (soil **A6**). **QLO** – relatively low lying plains, shallow valleys and lower slopes with some saline seepage (slopes 0-1.5%, 3-2s, 2-5% outcrop, 3r, 2a). **QLT** – depression with mostly marginal salinity (slopes <1%, 4-3s, 3-2r, 2-1a).
YEL YEU	11.5 0.7	Mostly deep to moderate depth carbonate sands. Main soils: *carbonate fine loamy sands and fine sandy loams* (soil **H1**-**A1**). With some *shallow carbonate fine loamy sands to fine sandy loams* (soil **B1b**). **YEL** – gently undulating plains or rises (slopes 0-2%, 2s, 2r, 3-4a). **YEU** – gently undulating plains with some saline seepage (slopes 0-1.5%, 3-2s, 2r, 3a).
YdL YdLr	2.6 12.8	Mostly shallow carbonate sands. Main soils: *shallow carbonate fine loamy sands to fine sandy loams* (soil **B1b**-**B1a**). With some *carbonate fine loamy sands and fine sandy loams* (soil **H1**-**A1**). **YdL** – relatively low lying gently undulating plains and lower slopes with a few very low sandy rises and some saline seepage (slopes 0-2%, 2-3s, approx. 2% outcrop, 3r, 3-2a). **YdLr** – gently undulating to level stony plain with frequent rock piles (slopes 0-1%, 2s, approx. 2% outcrop, 4-3r, 3-2a).
WGD WGE WGO	0.2 0.3 0.1	Coastal shell sand deposits. Main soils: *carbonate sand* (soil **H1**) and *shallow carbonate sand on calcrete* (soil **B1b**). **WGD** – coastal dunes (dune height 5-15m, 7-5a). **WGE** – low coastal dunes and slopes (dune height mostly <5m, with coastal slopes up to 100% slope, 5-4a). **WGO** – coastal sand spreads on steep slopes (slopes mostly 30-100%, 4a).
WU-	0.4	Mostly rocky reefs

Classes in the 'Soil Landscape Unit summary' table (eg. 2-1e, 3w, 2y, etc) describe the predominant soil and land conditions, and their range, found in Soil Landscape Units. The number '1' reflects minimal limitation, while increasing numbers reflect increasing limitation. Letters correspond to the type of attribute:

a - wind erosion e - water erosion f - flooding g - gullying
r - surface rockiness s - salinity w - waterlogging y - exposure

Detailed soil profile descriptions:

Main soils:

B1a *Shallow highly calcareous loams on calcrete* [Supravescent Petrocalcic Calcarosol]
A very highly to highly calcareous grey and powdery loam or fine sandy loam which is dominated by carbonate particles, but still has significant content of siliceous particles. The soil is underlain by calcrete at shallow to very shallow depth. Deeper types commonly have subsoil textures of fine sandy clay loam. Hard carbonate rubble commonly occurs in the profile. Can be overlain by a thin layer of shelly sandy loam.

B1b *Shallow carbonate loamy sands on calcrete* [Petrocalcic Shelly Calcarosol]
Very highly calcareous, grey and loose carbonate loamy sand to light sandy loam, with a relatively low content of siliceous particles, overlying calcrete at shallow depth. Surface soils are grey and subsoils are brown. Surface soils are water repellent. Can be overlain by a thin layer of younger shelly sand.

A1 *Highly calcareous loams* [Supravescent Hypercalcic-Lithocalcic Calcarosol]
A deeper variant of a **B1a** soil. Very highly calcareous to calcareous grey and powdery loam or fine sandy loam grading to loamy or clay loamy subsoil textures. Carbonate particles dominant the soil. The profile can contain various amounts of hard carbonate rubble, or can be underlain by calcrete at moderate depth. Can be overlain by a thin layer of shelly sandy loam.

H1 *Carbonate sands* [Shelly Calcarosol]
A deeper variant of a **B1b** soil. A very highly calcareous, grey and loose carbonate loamy sand to light sandy loam, with a relatively low content of siliceous particles. The profile can be underlain by calcrete at moderate depth, or sometimes contain hard carbonate fragments. Surface soils are grey and subsoils are grey to brown. Surface soils are water repellent. Found on inland sand drifts and coastal dunes. Can be overlain by a thin layer of younger shelly sand.

Minor soils:

B2 *Shallow calcareous loams on calcrete* [Hypervescent Petrocalcic Calcarosol]
A highly calcareous grey loam or fine sandy loam which is dominated by siliceous particles. The soil is underlain by calcrete at shallow to very shallow depth. Deeper types commonly have subsoil textures of fine sandy clay loam. Hard carbonate rubble commonly occurs in the profile. Surface soils typically have moderate to weak granular structure.

A4 *Calcareous loams* [Hypervescent Hypercalcic-Lithocalcic Calcarosol]
A deeper variant of a **B2** soil. Calcareous grey loam or fine sandy loam grading to loamy or clay loamy subsoil textures. Siliceous particles dominate the soil. The profile can contain various amounts of hard carbonate rubble, or can be underlain by calcrete at moderate depth.

A6 *Gradational calcareous clay loams* [Hypervescent-Epihypersodic Hypercalcic Calcarosol]
A calcareous to highly grey calcareous silty clay loam, grading to a red-brown or brown slightly to moderately calcareous clay, which grades to a brown highly calcareous clay. Clayey subsoils are sodic and dispersive. Found in relatively low lying sites.

Further information: DEWNR Soil and Land Program