CBO Cape Bouguer Land System

A system on Kangaroo Island's southern coast which mostly consists of jumbled shelly sand dune deposits. The area is bordered by the sea to the south, by rises and low-lying plains to the north-west, and by calcreted rises to the east and north-east. The system is named after Cape Bouguer which is situated on the eastern side of Hanson Bay.

Area: 21.2 km^2

Annual rainfall: 635 – 695 mm average

Geology: Recent and some very recent shell sand deposits (Holocene age Gantheaume Sand member, and some Semaphore Sand member, of the St. Kilda Formation). There are some areas with surface to near surface expression of calcreted calcarenite (Pleistocene age Bridgewater Formation). Some Stun Sail Boom granite (middle Cambrian age) is exposed along coastal cliffs.

Topography: Jumbled dune topography with some depression areas. The highest dunes are over 20 m high. These dunes mostly overlie undulating rises. Coastal cliffs vary from 10 to 50 m in height. Cliffs are mostly made up of calcarenite, however, some granite is exposed, especially at the base of cliffs. Beach/coastal dune areas without cliffs occur in the very west of this system: at the mouth of the South West River; and just west of this, at what looks like an old river mouth of the South West River.

Elevation: Elevation varies from sea-level to near 100 m in the east of the system

Relief: Typically from 10 – 20 m, but up to 50 m

Main Soils: **H1** Deep shell sands

Minor Soils: **A1**-**B1** Moderate to shallow shelly soil on calcrete
B2-**B1**-**B3** Very shallow organic soil on calcrete

Main Features: The system is non-arable due to fragile and infertile soils, with a covering of native scrub. Nature conservation is the main priority here.

Soil Landscape Unit summary: Cape Bouguer Land System (CBO)

SLU	% of area	Main features #
M-A M-B	1.0 0.8	Non-arable sheet calcrete areas. Main soils: mostly not soil, but exposed calcrete outcrop (**RR**). Areas occur of very shallow, dark and organic loamy to sandy soil on calcrete **B2**-**B1**-**B3** (*Petrocalcic Rudosol*). With some deeper soils. **M-A** – gently undulating area **M-B** – slopes (4-10%, 2e)
MjD MjYB	0.5 4.1	Non-arable calcreted areas: with mostly moderate depth sandy soils. Main soils: moderate depth sandy soil on calcrete **A1**-**H2**-**H3** (*Petrocalcic Shelly Calcarosol*, Petrocalcic Calcarosol, and Petrocalcic Calcareous Tenosol). Probably with some deeper sandy soils. **MjD** – slopes (10-20%, 4e) **MjYB** – jumbled dunes (5-15m)

MaC	0.2	Non-arable calcreted areas: with shallow shelly soils. Main soils: shallow fine shelly sand on calcrete **B1** (*Petrocalcic Shelly Calcarosol*). **MaC** – slopes (8-12%, 3e)
WAB	2.7	Unconsolidated coastal calcarenite cliffs. Often with rocky (granite) or calcarenite reef at the base of cliffs. **WAB** – calcarenite cliffs (>100%)
WBB	0.4	Consolidated coastal granite cliffs, steep slopes and reefs. Cliffs usually capped by calcarenite. **WBB** – granite cliffs and steep slopes (>30%)
WGC WGD WGE WGEa WGQ WGR WGM WGO WGe	7.9 42.2 9.4 8.9 2.8 4.2 2.2 0.7 1.4	Non-arable shell sand areas. Main soils: deep shell sand soil **H1** (*Shelly Calcarosol-Rudosol*). Sometimes with some shallow to moderate depth soil on calcrete, especially in areas with low dunes (**B1**-**A1**). '**WGR**' depressions often have moderate depth soil over a 'soft' shelly pan and some calcarenite fragments/rubble (**A1**). **WGC** – mostly high jumbled dunes (>15m) **WGD** – mostly jumbled dunes (5-15m) **WGE** – mostly low jumbled dunes (<5m). Some soils with calcrete <1m. **WGEa** – mostly low coastal jumbled dunes (<5m). Some soils with calcrete <1m. **WGQ** – depressions, with very low dunes **WGR** – wetter depression **WGM** – mostly jumbled dunes (5-15m) on 10-30% slopes **WGO** – shell sand deposits on steep slopes (30-100%) **WGe** – mostly bare low jumbled dunes (<5m) and beaches
WHE	10.8	Non-arable shell sand dunes: older dune areas with some soils on calcrete (<1m). Main soils: deep shell sand soil **H1** (*Shelly Calcarosol*). With some moderate depth shell sand on calcrete **A1** (*Petrocalcic Shelly Calcarosol*). **WHE** – mostly low jumbled dunes (<5m)

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:

H1 Deep shell sands (*Shelly Calcarosol-Rudosol*). Deep fine shell sand soil: dark grey, grey-brown, brown or light grey topsoil over light grey to brown subsoil. Usually with an organic build-up, and some leaching of carbonate, in topsoil layers. Jumbled dunes and depressions.

Minor Soils:

A1-**B1** Moderate to shallow shelly soil on calcrete (*Petrocalcic Shelly Calcarosol*). Moderate to shallow depth dark grey, grey-brown or brown, sometimes rubbly, fine shell sand on calcrete. Some soils in depressions are rubbly over unconsolidated but massive, light grey coarse shell sand. Organic build-up, especially in depressions, and some leaching of carbonate in surface layer. Older dunes and some depressions.

B2-**B1**-**B3** Very shallow organic soil on calcrete (*Petrocalcic Rudosol*). Very shallow, dark and organic rich, mostly calcareous and rubbly loamy to sandy soil on calcrete. Can be shelly. Found on wind-swept clifftops where the land surface is a mosaic of bare calcrete outcrop and calcrete covered with a thin veneer of soil.

Further information: DEWNR Soil and Land Program