BLP Black Point Land System

Mostly shell sand deposits which overlie rising ground on the south coast of the Dudley Peninsula

Area: 42.9 km^2

Annual rainfall: 525 – 610 mm average

Geology: Recent and very recent shell sand deposits (Gantheaume Sand and Semaphore Sand: both members of the St. Kilda Formation). There have been at least two major sand deposition episodes over this area. The Semaphore Sands are the younger and more active/bare sand deposits. There are minor areas with near surface to surface expression of calcreted calcarenite (Pleistocene age Bridgewater Formation). Calcarenite forms under shell sand deposits: wind depletion of shell sands can reveal calcreted calcarenite, upon which shallow soils form. Older sedimentary layers and rock underlie the shell sand and calcarenite at depth, and form the underlying topography.

Topography: This land system consists of coastal rises which have been overlain by shell sand and calcarenite. The shell sand is in the form of jumbled dunes and sand spreads. Jumbled dunes are mostly less than 15 m high, but do reach over 20 m high. Depressions and vague drainage areas occur between the dunes. The mouth of the Willson River is the only significant watercourse encompassed by this land system. Over the bulk of the area slopes typically range from 0 - 10%. The steepest dune slopes are over 20%. While along the coast, slopes of 10 to 100% commonly occur. Coastal cliff slopes are typically over 100%; with cliffs reaching 50m high.

Elevation: Highest elevation is around 140 m: on a rise in the central north of the system; and on a high dune crest in the west of the system. Lowest elevation is at sea level. Typical elevations range from 50 m to 110 m.

Relief: 10 - 50 m

Main soils:

H1 Shell sand
A1 Highly calcareous sandy loam

Minor soils:

B1 Shallow shell sand or highly calcareous soil on calcrete
B2b Shallow organic-rich calcareous soil on calcrete
B2a Shallow calcareous soil on calcrete

Main features: The system is mostly non arable due to fragile and infertile soils, and is mostly covered by native scrub: consequently nature conservation is the main priority. A few areas have been cleared for grazing livestock. Blow-outs and other naturally bare areas of sand occur.

Soil Landscape Unit summary: Black Point Land System (BLP)

SLU	% of area	Main features #
M-B M-C	0.1 0.1	Exposed coastal slopes dominated by sheet calcrete. Main soils: mostly not soil, but calcrete outcrop. With areas of typically very shallow loamy to sandy calcareous soil on calcrete: this soil is usually dark and organic-rich **B2**b (*Petrocalcic Rudosol*). **M-B** coastal slopes (slopes 3-10%, 2e, 3y) **M-C** coastal slopes (slopes 10-20%, 3e, 3y) Summary: exposed areas where most soil material has been blown away, leaving behind calcreted calcarenite outcrop. Small and shallow solution holes filled with dark organic-rich soil material commonly occur.
MaB	0.9	Coastal slopes dominated by shallow shelly soils on calcrete. Main soils: mostly shallow loose shelly soil on calcrete **B1** (*Petrocalcic Shelly Rudosol-Calcarosol*). Some deeper shell sands **H1** (*Shelly Rudosol-Calcarosol*) may occur. **MaB** exposed coastal slopes (slopes 2-5%, 2e, 3y) Summary: calcreted calcarenite with shallow soils.
MeB MeC	0.1 1.4	Slopes dominated by shallow calcareous soils on calcrete. Main soils: mostly shallow calcareous, highly calcareous or shelly soil on calcrete **B1**-**B2**a (*Petrocalcic Calcarosol*). Deeper shell sand **H1** (*Shelly Calcarosol-Rudosol*) occurs in lows. **MeB** rise (slopes 1-3%, 2-1e, 2-1y) **MeC** exposed coastal slopes with some drainage lines (slopes 1-8%, 3-2e, 1-2g, 3-2y). Summary: calcreted calcarenite with shallow soils.
WGd WGe WGea WGex WGm WGt WGC WGD WGDa WGDn WGDx WGE WGEn WGEx WGM WGN WGO WGQ WGQn WGQx WGR WGS	7.1 1.8 0.5 3.2 3.2 0.4 4.3 10.0 1.7 1.9 14.2 7.0 4.5 7.0 5.5 2.8 1.6 9.0 0.6 3.8 3.3 0.2	Mostly shell sand deposits. Main soils: shell sand **H1** (*Shelly Rudosol-Calcarosol*) on dunes, beaches, slopes and in depressions and flats. With highly calcareous uniform to gradational sandy loams **A1** (*Shelly-Supravescent Calcarosol*), often with carbonate rubble, in depressions and flats. Also some shallow highly calcareous/shelly soils on calcrete **B1** (*Petrocalcic Calcarosol*) can occur, especially in flats, margins adjacent to coastal cliffs, and low dune areas. *Mostly bare sand dunes, beaches and flats – typically more recently deposited sands*: **WGd** exposed jumbled dunes: with extensive bare areas (dunes mostly 5-15m, 7a, 3y) **WGe** bare beaches and foredunes: sometimes with low calcarenite cliffs separating foredunes and beaches (7a, 3y) **WGea** bare blown out areas in the form of scooped-out low dunes (7a, 3-2y) **WGex** exposed coastal areas with mostly jumbled low dunes: with extensive blown-out bare areas (dunes mostly <5m, some 5-15m, 7a, 3y) **WGm** coastal slopes with mostly jumbled dunes: with extensive bare areas (slopes 10-30%, 7a, 3y) **WGt** bare beaches, flats and jumbled dunes, and swampy patches at the mouth of the Willson River (7-5a, 3-2y) *Dunes and sand spreads*: **WGC** mostly high jumbled dunes: often with bare patches (dunes mostly >15m high with some lower dunes, 7a, 3y) **WGD** mostly jumbled dunes (dunes mostly 5-15m high, 5-7a, 2y) **WGDa** mostly jumbled dunes: with some bare patches (dunes mostly 5-15m, 7-5a, 2y) **WGDn** mostly jumbled dunes: areas mostly cleared (dunes mostly 5-15m, 5-7a, 3y) **WGDx** mostly exposed jumbled dunes: typically with some bare patches (dunes mostly 5-15m high, 7-5a, 3y) **WGE** mostly jumbled low dunes (dunes <5m high, 5a, 2y) **WGEn** mostly jumbled low dunes: areas mostly cleared (dunes <5m, 5-4a, 3-2y) **WGEx** exposed low dunes/sand spreads: typically with some bare patches (on slopes 0-10%, 7-5a, 3y) **WGM** coastal slopes with jumbled dunes and some drainage lines (slopes 5-30%, 7a, 3y) **WGN** coastal slopes with low dunes/sand spreads: drainage lines can occur (slopes 10-30%, 7a, 3y) **WGO** coastal slopes with gullies & dunes/sand spreads (slopes mostly 30-100%, 7a, 3-2y)

		Flats and depressions: **WGQ** flats/depressions with some low dunes: some patches cleared (slopes 0-5%, 3-4a, 1-2y, 2-1w, 2-1s) **WGQn** cleared coastal flat (slopes <1%, 2-3s with minor marginal salinity (4s) in a small depression area, 2y) **WGQx** exposed flats/depressions (slopes 0-5%, 4a, 3-2y, 2-1w, 2-1s) **WGR** wetter/more saline flats/depressions (slopes 0-1%, 3-2a, 1-2y, 3-2w, 3-2s) **WGS** wet/ marginally saline depressions (slopes <1%, 2a, 4-3w, 4-3s) Summary: infertile, and typically wind erosion prone soils.
WAA WAB	0.5 3.4	Unconsolidated coastal cliffs and slopes. Some hard rock exposure may occur, especially on reefs. **WAA** unconsolidated coastal slopes and gullies (slopes mostly 30-100%) **WAB** coastal calcarenite cliffs: often including reefs (slopes mostly >100%; cliff heights up to 50m)

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 Shell sand (*Shelly Rudosol-Calcarosol*). Highly calcareous fine shell sand soil: typically with grey brown to dark grey brown topsoil over pale brown to light grey subsoil. Dominantly composed of calcium carbonate grains. Usually with some organic matter accumulation in the topsoil. Some hard carbonate nodules can occur in the subsoil. Typically underlain by calcreted calcarenite at moderate or greater depth. In depressions, these soils can be underlain by heavier textured highly calcareous sedimentary layers, such as reddish highly calcareous clay loams. Found on jumbled dunes, sand spreads, flats and depressions.

A1 Highly calcareous sandy loam (*Shelly-Supravescent Calcarosol*). Highly calcareous dark grey brown sandy topsoil grading into grey brown to pale brown sandy loam subsoil. These soils are either dominantly composed of calcium carbonate grains or have a large component of these. Topsoils generally have a high organic matter content. Subsoils typically have significant amounts of hard carbonate nodules/fragments. Typically underlain by highly calcareous sandy loam, heavier textured highly calcareous sedimentary layers, or even calcreted calcarenite at moderate or greater depth. Found in flats and depressions.

Minor soils:

B1 Shallow shell sand or highly calcareous soil on calcrete (*Petrocalcic Calcarosol*). Shallow highly calcareous sandy soils dominantly composed of calcium carbonate or with a large component of these. Underlain by calcreted calcarenite. Found on wind-swept exposed coastal slopes and some flats where shell sands have been depleted by wind-action.

B2b Shallow organic-rich calcareous soil on calcrete (*Petrocalcic Rudosol*). Very shallow, dark and organic-rich, calcareous to shelly, rubbly sandy or loamy soil on calcrete. Found on wind-swept coastline where the land surface is a mosaic of bare calcrete outcrop and calcrete covered by a thin veneer of soil in small solution holes.

B2a Shallow calcareous soil on calcrete (*Petrocalcic Calcarosol*). Shallow calcareous sandy soil on calcreted calcarenite. Found on slopes where shell sands have been removed by wind action.

Further information: DEWNR Soil and Land Program