

CAJ Cape Jervis Land System

Coastal plain at Cape Jervis

Area: 8.7 km²

Annual rainfall: 520 – 610 mm average

Geology: The landscape is underlain by heavy clays of late Tertiary or Pleistocene age (Hindmarsh Clay). These only outcrop along the eastern side, as elsewhere they are capped by sheet or rubbly calcrete. The calcrete in turn is partly covered by recent wind blown siliceous sand. On the coast in the south west is an extensive outcrop of Bridgewater Formation calcarenite. This is substantially covered by calcareous and siliceous sand. In the north is a small remnant of glacial valley sandy clay.

Topography: The landscape is an undulating plain. It includes a gently inclined fan abutting the escarpment of the Delamere Land System. The western edge of the fan is marked by gently undulating calcrete rises which extend to the coast. Here the topography becomes hummocky and dominated by sand drift, interspersed with stony patches.

Elevation: 0 - 140 m

Relief: Coastal cliffs are up to 70 m high, but elsewhere relief is less than 50 m

Soils: Calcareous soils are most common. Shallow profiles over rubbly or sheet calcrete are predominant, with deep calcareous loams, with or without rubble. Deep sands are common near the sea.

Main soils

B2 Shallow calcareous loamy sand to clay loam on calcrete

A6 Gradational calcareous clay loam

Minor soils

A5 Calcareous sandy loam

D3 Loam over dispersive red clay

H1 Deep calcareous (shell) sand

H2 Brown sand

H3 Deep siliceous sand

Main features: The Cape Jervis Land System is a unique landscape of undulating topography dominated by calcareous and sandy soils. Shallow stony soils on calcrete are predominant, but deeper rubbly and non rubbly calcareous loams are extensive. These are the most productive soils of the System. Variable sandy soils are common near the coast. These are infertile and prone to wind erosion. They are mixed with shallow calcareous soils. Productivity potential is low.



Soil Landscape Unit summary: 7 Soil Landscape Units (SLUs) mapped in the Cape Jervis Land System:

SLU	% of area	Main features #
HGC	4.5	Slopes of 5-10% formed on relict glacial valley sediments. Main soil: <u>Loam over dispersive red clay</u> - D3 (D). These soils are deep and moderately fertile, but poorly structured, with hard setting surfaces prone to erosion, and dispersive subsoils preventing free drainage and even root growth.
IUC	22.2	Gently sloping outwash fans with slopes of 3% to 8% formed on Hindmarsh clays, overlain by Woorinen Formation carbonates. Moderately well defined water courses traverse the slopes in shallow depressions. There is limited surface stone. The soils are calcareous and generally shallow over Class III carbonates. Differences are mainly due to the amount of calcrete rubble in the profile. Main soils: <u>Gradational calcareous clay loam</u> - A6 (V) <u>Rubby calcareous loam</u> - A5 (C) <u>Shallow calcareous loam on calcrete</u> - B2 (L). This land is fully arable, although some soils are shallow. The main soil is naturally fertile, although alkaline. Apart from the variations in depth and hence water holding capacity, the main limitation to productivity is exposure.
QGB QGE	43.6 2.0	Undulating low hills and gently inclined slopes formed on Hindmarsh Clays, strongly calcreted with Classes III C or II carbonates. Relief is up to 50 metres and slopes are 2% to 6%. There is abundant surface calcrete and sheet rock outcrop. QGB Low hills and slopes of 2-6%. QGE Steep sided water course incised into the calcrete capping of QGB, with Hindmarsh Clays in the bed. The dominant soils are shallow calcareous loams over calcrete rubble. Main soil: <u>Shallow calcareous loam on calcrete</u> - B2 (D). This land is semi arable due to the shallowness of the soil and the abundance in places of surface calcrete. The poor water storage capacity of the soil is exacerbated by the exposure of the land.
URK	6.5	Undulating land with a hummocky micro-topography formed on brown siliceous sand overlying calcarenite. Main soil: <u>Brown sand</u> - H2 (D) The sands are moderately deep to deep, with low to moderate water holding capacity, and rapid drainage. Their limitations are low natural fertility, wind erosion susceptibility and possibly water repellence. This land is very highly exposed to coastal wind.
WA-	5.5	Coastal cliffs.
WVE	15.7	Undulating hummocky rises formed on calcreted calcareous sands of the Bridgewater Formation, with superimposed sand dunes of siliceous and calcareous Semaphore Sands. Low cliffs are included. Sheet calcrete and surface stones occur sporadically. Main soils: <u>Deep siliceous sand</u> - H3 (C) <u>Deep calcareous sand</u> - H1 (C) <u>Shallow calcareous loamy sand</u> - B2 (E). These soils are either very shallow and stony, or deep and highly infertile. They have poor agricultural potential and are mostly contained within a conservation reserve.

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

- (D) Dominant in extent (>90% of SLU)
- (V) Very extensive in extent (60–90% of SLU)
- (E) Extensive in extent (30–60% of SLU)
- (C) Common in extent (20–30% of SLU)
- (L) Limited in extent (10–20% of SLU)
- (M) Minor in extent (<10% of SLU)



Detailed soil profile descriptions:

- B2** Shallow calcareous loamy sand to clay loam on calcrete (Petrocalcic, Supracalcic Calcarosol)
15 - 20 cm calcareous loamy sand to clay loam grading to a Class III B carbonate layer overlying a sheet to rubbly calcrete pan at about 30 cm. The sandier types are more typical in coastal sandhill country.
- A5** Calcareous sandy loam (Regolithic, Supracalcic / Lithocalcic Calcarosol)
5 - 20 cm dark reddish brown moderately calcareous loamy sand to light sandy clay loam with weak granular structure and minor calcrete nodules, becoming more clayey and calcareous with depth over a Class III C or III B carbonate layer, less rubbly with depth over Hindmarsh Clay from about 65 cm.
- A6** Gradational calcareous clay loam (Regolithic, Hypercalcic Calcarosol)
5 - 30 cm grey brown or red brown moderately calcareous loam to sandy clay loam, becoming more clayey and calcareous with depth, overlying a brown to red, highly calcareous sandy clay loam to light clay, grading at about 30 cm to a pale brown very highly calcareous sandy clay with up to 50% soft carbonate segregations (Class I carbonate) which grades to Hindmarsh Clay at 80 cm.
- D3** Loam over dispersive red clay (Hypercalcic, Red Sodosol)
15 - 30 cm hard brown loamy sand to sandy clay loam with a pink A2 horizon, overlying a red sandy clay to heavy clay with strong blocky structure grading to a yellowish very highly calcareous clayey sand to clay, forming in brown and red sandy clay to clay at 75 cm.
- H1** Deep calcareous (shell) sand (Shelly Calcarosol)
Up to 50 cm loose single grained light greyish brown highly calcareous shell sand, overlying up to several metres of white shell sand. Calcreted calcarenite may underlie the sand at variable depths at the margins of the sand deposits.
- H2** Brown sand (Petrocalcic, Brown-Orthic Tenosol)
More than 30 cm and commonly more than 100 cm soft to loose brown sand with a paler or bleached A2 layer over a red sandy loam to light sandy clay loam over a weak calcareous pan, or soft sand.
- H3** Deep siliceous sand (Basic, Arenic, Bleached-Orthic Tenosol)
40 - 70 cm loose bleached sand grading to loose yellow sand, continuing below 100 cm.

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

