

DUF Duffield Land System

Backswamps extending from Cantara to Kingston

Area: 135.3 km²

Annual rainfall: 550 – 650 mm average

Geology: The System is dominated by backswamps formed on lagoonal sediments of the St. Kilda Formation. Includes shell grits, marls and limestones. Protruding through these sediments are minor calcarenites of the Bridgewater Formation where remnants of older calcareous sands have become indurated. There are minor deposits of Semaphore Sand adjacent to the frontal dunes of Coolatto Land System to the west.

Topography: The Land System is a flat back plain, with swamps occupying about half of the area, with most of the rest being saline flats. There are limited areas of low rises on calcarenite or sand.

Elevation: 0 - 5 m

Relief: Up to 5 m

Soils: A range of wet saline soils, sandy and calcareous loamy soils occurs

Main soils

Swamps

N2 Saline soil

Minor soils

Flats

G4 Sand over yellow and brown clay

A7 Calcareous loam

Rises

B3 Shallow stony loamy sand over calcrete

B8 Thick bleached sand over calcrete

H2 Deep brown sand

H1 Shell sand

Main features: The Duffield Land System consists mainly of near coastal flats which, due to high salinity and exposure, have limited land use options. Grazing and conservation are the most common land uses.



Soil Landscape Unit summary: 12 Soil Landscape Units (SLUs mapped in the Duffield Land System):

| SLU | % of area | Main features # |
|-----|-----------|--|
| A-g | 0.1 | Low granite rises with either very shallow coarse granitic sand on granite or bare granite outcrop. |
| VfW | 8.1 | Plains with shallow grey calcareous loam, or shallow bleached siliceous sand, on calcreted marine sediments or limestone. 10-20% sandy rises with deep calcareous siliceous sand. |
| VkP | 3.0 | Plains with shallow loam over poorly structured brown clay on calcrete. 10-20% stony rises with thin calcareous loam, shallow on calcrete. |
| VoT | 1.5 | Calcareous rises with deep gradational, calcareous clay loam over rubbly calcareous clay loam or clay on marine or lagoonal sediments. |
| ZB- | 6.3 | Samphire flats with wet, highly to slightly saline, sandy loam over dark clay; 10-30% peat soils. 20-30% dunes with deep shelly calcareous sand or calcareous siliceous sand; 10-30% shallow bleached sand on calcrete. |
| ZD- | 11.5 | Salt lakes, with bare salt crusts, occasionally water filled. Highly saline dark clay loamy surface soils. |
| ZEi | 0.4 | Stony plains with wet, moderately to highly saline soils and shallow calcareous loam over calcrete; 10-30% bare calcrete. 20-30% highly saline swamps with wet, calcareous loam over clay or on calcrete. |
| ZK- | 28.8 | Complex of saline flats (V), low sandy and stony rises (L) and swamps (L). Underlying materials include marls, shell grits and clays. Main soils: <u>swamp soil</u> - N2 (L) on flats and swamps, with <u>sand over yellow and brown clay</u> - G4 (E) and <u>calcareous loam</u> - A7 (E) on better drained flats, and <u>shallow stony loamy sand over calcrete</u> - B3 (M), <u>thick bleached sand over calcrete</u> - B8 (M), <u>deep brown sand</u> - H2 (M) and <u>shell sand</u> - H1 (M) on sandy and stony rises. The flats are too wet and saline for agriculture, while the rises are isolated and of little productive value. |
| ZKs | 0.1 | Swampy flats with wet, moderately saline to nonsaline, clay loam over poorly structured dark clay; 10-30% inundated or gradational calcareous clay loam over calcareous clay on marl. Lunettes are co-dominant with shallow dark clay loam, often over dark clay, on calcrete. 20-30% salt lakes with highly saline, usually salt encrusted, calcareous clay loam over dark clay; 10-30% water filled. 10-20% dunes with deep shelly calcareous sand or calcareous siliceous sand. Swampy flats and 20-30% sand dunes with soils for swampy flats and dunes as above. |
| ZS- | 23.1 | Swamps. Main soil is <u>saline soil</u> - N2 (D). These areas have no agricultural value and are an integral part of the Coorong wetlands environment. |
| ZT- | 2.8 | Swamps with highly to moderately saline wet sandy loam over dark clay or calcrete. 20-30% dunes with deep shelly calcareous coastal sand. |
| Zy- | 14.2 | Complex of swamps and lunettes. Swamps with moderately saline, mostly wet, dark cracking clay; 10-30% water filled or calcareous clay on marl. 10-20% lunettes with dark clay loam, often over dark clay, on calcrete. |

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:

- A7** Calcareous loam (Hypercalcic / Marly Calcarosol)
Medium to thick calcareous dark loam grading to a pale grey clay loam over soft carbonate from about 50 cm.
- B3** Shallow stony loamy sand over calcrete (Petrocalcic, Leptic Tenosol)
Loamy sand to loam with variable rubble and slight clay increase with depth overlying calcreted calcarenite shallower than 50 cm.
- B8** Thick bleached sand over calcrete (Petrocalcic, Bleached-Leptic Tenosol)
Thick bleached sand over calcarenite.
- G4** Sand over yellow and brown clay (Hypercalcic / Lithocalcic, Brown Sodosol)
Medium thickness loamy sand abruptly overlying a brown and yellow brown mottled clay, with rubbly to soft carbonate at depth.
- H1** Shell sand (Shelly Rudosol)
Very thick shell sand with no profile development other than slight organic darkening at the surface
- H2** Deep brown sand (Petrocalcic, Brown-Orthic Tenosol)
More than 100 cm brown sand over calcrete.
- N2** Swamp soil (Calcarosolic, Hypersalic Hydrosol)
Medium thickness dark grey calcareous loam becoming paler coloured with depth over a very highly calcareous light grey clay loam with saline water table in rubbly marl at about 50 cm. shallow depth (typically at around 50 cm).

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

