DES Desert Camp Land System

Area: 150.6 km^2

Annual rainfall: 535 – 560 mm average

Geology: Lagoonal sediments of the Padthaway Formation, comprising limestones and sandy clays. The sediments are typically calcreted at the surface. Minor granitic intrusions protrude through the younger materials.

Topography: Plain to the west of Yallamurray and the Naracoorte Range Land Systems in the Desert Camp area with an imperceptible grade to the west.

Elevation: 25 – 30 m

Relief: Nil

Soils: Most soils are shallow over calcreted limestones and sandy clays. Surface textures vary from sand to clay loam. Subsoils, where present, range from friable sandy clay to poorly structured dispersive clay.

Main soils

Plains

B7a Shallow sand over clay on calcrete
B5 Shallow dark clay loam on calcrete
G4 Sand over poorly structured clay

Minor soils

Plains

B3 Shallow sandy loam on calcrete
B2a Shallow calcareous loam on calcrete
G3 Sand over clay

Swamps

N3 Wet soil (non to marginally saline)

Wet variants of soils B5, B7a, G3 and G4 (above)

N2a Wet saline sand over clay
N2b Wet saline shallow dark clay loam

Sandy and stony rises

B2b Shallow calcareous sandy loam on calcrete
B6 Shallow loam over red clay on calcrete
B7b Shallow sand over sandy clay on calcrete
G2 Thick sand over sandy clay loam
H3 Deep sand

Granite Outcrop

L1 Gritty loamy sand on granite

Main features: The Desert Camp Land System is characterised by flat plains with shallow stony soils of marginal fertility and restricted waterholding capacity. The land is generally unaffected by salinity, but is at risk if saline regional water tables continue to rise.

Soil Landscape Unit summary: 8 Soil Landscape Units (SLUs) mapped in the Desert Camp Land System:

SLU	% of area	Main features #
A-g	1.0	Very rocky slopes of granite intrusions. These have gravelly and gritty soils (**L1**) of little agricultural value.
NAA	1.2	Level plain with less than 10% swamps. Main soils: shallow sandy loam on calcrete - **B3** (E), shallow sand over clay on calcrete - **B7a** (E) and shallow dark clay loam on calcrete - **B5** (L) with wet variants of B3/B5/B7a - **N3** (M) in swamps. These soils are fully arable, although some soils are shallow. They have moderate to high fertility, although they are alkaline at depth. The main limitations are the variations in depth and hence waterholding capacity. Waterlogging is a problem in wetter seasons.
NZk	0.1	Marginally saline plain with 20-30% swamps and minor sand rises. Water tables are within 100 cm of the surface. Main soils: shallow sand over clay on calcrete - **B7a** (V), thick sand over clay - **G3** (L) and shallow dark clay loam on calcrete - **B5** (L). Wet saline sand over clay - **N2a** (L) and wet saline shallow dark clay loam - **N2b** (L) occur in swamps. Deep sandy soils - **G2** and **H3** occur on minor rises. The predominant plains soils are mostly shallow over calcrete, restricting waterholding capacity, and have variable fertility (high for B5 soils, low for B7a, G3 soils). However, waterlogging and increasing salinization are the main limitations to pasture productivity. The swamps are more severely affected. The deep sandy soils on rises are well drained but susceptible to water repellence and wind erosion.
NjB NjR NjU	60.6 4.2 0.4	Level plains with minor swamps and up to 20% stony and sandy rises. **NjB** Stony plain with less than 10% swamps and about 10% stony rises. **NjR** Plain with 10-20% sand rises and minor stony rises and swamps. **NjU** Plain with 20-30% stony rises and 10-20% saline swamps. Main soils on plains: shallow sand over clay on calcrete - **B7a** (E-C), sand over poorly structured clay - **G4** (C-L), shallow sandy loam on calcrete - **B3** (L), shallow dark clay loam on calcrete - **B5** (L), shallow calcareous loam on calcrete - **B2a** (M) and thick sand over clay - **G3** (M). Wet (saline) variants of B7a/G4/B5/B3 - **N3** and **N2** (M) occur in swamps. The plains soils are either moderately fertile, but shallow with limited waterholding capacity, or are deeper but sandy and low in fertility, with restricted drainage due to poorly structured subsoils. Most of the land is relatively unaffected by salinity. Shallow calcareous loam on calcrete - **B2b** (M), shallow sand over sandy clay on calcrete - **B7b** (M) and shallow loam over red clay on calcrete - **B6** (M) occur on stony rises. Restricted waterholding capacity due to calcrete at shallow depth is the main limitation. Thick sand over sandy clay loam - **G2** (M) and deep sand - **H3** (M) occur on sandy rises. These soils are infertile and susceptible to water repellence and wind erosion.
NkP	1.2	Plains with 10-20% sandy rises with up to 10% swamps. Main soils: shallow sand over clay on calcrete - **B7a** (E), thick sand over clay - **G3** (E), with wet variants - **N3** (M) in swamps. Thick sand over sandy clay loam - **G2** (M) and deep sand - **H3** (M) occur on sandy rises. The soils of the plains have moderately low fertility and moderate to imperfect drainage. Waterholding capacity is moderately low in the shallow B7a soils, and moderate in the deeper G3 soils. Waterlogging is a problem in wet seasons, but salinity is relatively low. The sandy soils of the rises are infertile and susceptible to water repellence and wind erosion.

NmB	31.3	Stony plain with up to 10% swamps. Main soils: shallow sand over clay on calcrete - **B7a** (V), shallow dark clay loam on calcrete - **B5** (C), with wet variants - **N3** (M) in swamps. These soils are shallow and stony with moderate to moderately low (B7a) to moderately high (B5) fertility. They are prone to waterlogging in wet seasons, but are relatively unaffected by salinity.

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:

B2a Shallow calcareous loam on calcrete (Petrocalcic, Calcic Calcarosol)
Shallow brown to reddish calcareous sandy loam on calcreted limestone.

B2b Shallow calcareous sandy loam on calcrete (Petrocalcic Calcarosol)
Shallow brown to reddish calcareous sandy loam to loamy sand on calcreted calcarenite.

B3 Shallow sandy loam on calcrete (Petrocalcic, Leptic Tenosol)
Medium thickness sandy loam overlying a layer of mixed calcrete rubble and pockets of brown sandy clay grading to calcreted lagoonal sediments.

B5 Shallow dark clay loam on calcrete (Petrocalcic, Black Dermosol)
Medium thickness dark loam to clay loam over well structured dark clay overlying calcreted limestone within 50 cm.

B6 Shallow loam over red clay on calcrete (Petrocalcic, Red Chromosol)
Thin sandy loam to loam over a reddish brown clayey subsoil on calcreted calcarenite. The topsoil can be slightly calcareous and the subsoil highly calcareous.

B7a Shallow sand over clay on calcrete (Petrocalcic, Grey Sodosol)
Thin to medium thickness sand to sandy loam overlying grey poorly structured clay on limestone or calcreted sandy clay within 50 cm.

B7b Shallow sand over sandy clay on calcrete (Petrocalcic, Brown Chromosol / Kandosol)
Medium to thick sand with a bleached A2 layer abruptly overlying a brownish friable sandy clay loam to clay over calcreted calcarenite.

G2 Thick sand over sandy clay loam (Mesotrophic, Yellow Kandosol)
Thick bleached sand, organically darkened at surface, grading to a yellow and red friable massive sandy clay loam.

G3 Sand over clay (Brown Chromosol / Sodosol)
Thick grey sand with a paler coloured or bleached sand A2 layer, over a friable to poorly structured yellowish brown clay.

G4 Sand over poorly structured clay (Grey Sodosol)
Thin to medium thickness organically darkened sand overlying a thin bleached sand layer over a poorly structured grey clay on limestone or calcrete deeper than 50 cm.

H3 Bleached siliceous sand (Basic, Arenic, Bleached-Orthic Tenosol)
Organically darkened grey sand with a bleached sandy subsurface (A2) layer grading to yellow sand at depth, continuing below 100 cm.

L1 Gritty loamy sand on granite (Red Kandosol / Lithic, Leptic Tenosol)
Variable thickness gritty red loamy sand to light sandy loam, sometimes becoming more clayey with depth over weathering to hard granite, usually within 50 cm.

N2a Wet saline sand over clay (Petrocalcic, Sodosolic, Salic Hydrosol)
Medium thickness sand over a coarsely structured grey mottled sandy clay loam to clay on calcreted marl or limestone at depths between 40 and 80 cm. Saturated for more than half the year with a saline watertable within 100 cm.

N2b Wet saline shallow dark clay loam (Petrocalcic, Dermosolic, Salic Hydrosol
Medium thickness dark loam to clay loam over well structured dark clay overlying calcreted limestone within 50 cm. Saturated for more than half the year, with a saline water table within 100 cm.

N3 Wet soil (Oxyaquic / Redoxic Hydrosol)
Variants of the following soils (non saline to slightly saline, saturated for more than half the year, watertable within 100 cm):

B5 (Petrocalcic, Dermosolic, Oxyaquic Hydrosol)
B7a (Petrocalcic, Sodosolic, Oxyaquic Hydrosol)
G3 (Eutrophic, Sodosolic, Redoxic Hydrosol)
G4 (Calcareous, Sodosolic, Redoxic Hydrosol)

Further information: DEWNR Soil and Land Program