ALB Albert Land System

Low sandy and stony hills between Lakes Alexandrina and Albert.

Area: 113.1 km^2

Annual rainfall: 410 – 460 mm average

Geology: The land is underlain by calcreted calcarenites of the Bridgewater Formation. These outcrop extensively in places but are largely covered by windblown Molineaux Sand. Between the calcarenite and the waters of the lake are narrow strips of sediments either deposited during times of higher water levels, or washed down from adjacent slopes. The lacustrine deposits tend to be clayey, while the colluvial deposits are sandy.

Topography: The landscape is typically strongly undulating. Slopes are in the range 3-20%. The landscape pattern includes slopes with sporadic calcrete outcrops and associated surface stone, large unstable sandhills, some of which are actively drifting, and small depressions, often with a salt pan in the floor. Narrow strips of flat land separate the low hills from the lake in places.

Elevation: 0 - 82 m

Relief: Up to 80 m

Soils: Most soils fall into two categories, viz. deep sand or shallow over calcrete. There are minor swampy soils in depressions.

Main soils
Sandy soils
H2 Deep sand
H2/G1 Thick sand over light sandy clay loam

Minor soils
Shallow stony soils on calcrete
B3 Shallow sandy loam
B2 Shallow calcareous loamy sand
B7 Shallow sand over sandy clay
Flats and Swamps
E1 Black cracking clay
N2 Swamp soil
M1 Deep grey sand

Main features: The Albert Land System is characterized by strongly undulating rises and low hills with two contrasting soils. Most common are deep sands with very low fertility and high susceptibility to wind erosion. Subdominant and associated with moderate to extensive surface calcrete and outcropping reefs is a range of shallow sandy soils over calcrete. These may or may not have thin clayey subsoils, but all have land use limitations caused by surface stone and low water holding capacity.

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

SLU	% of area	Main features #
MoC MoE	20.7 0.8	Undulating rises formed on calcreted calcarenite, with surface stone and rock common over about 40% of the land surface. There are very minor saline depressions. **MoC** Undulating slopes. **MoE** Depressions. Main soils: thick sand over light sandy clay loam - **H2/G1** (E), and deep sand - **H2** (C) with shallow sandy loam - **B3** (L), shallow calcareous loam - **B2** (L) and shallow sand over sandy clay - **B7** (L) on the stony ground. The sandy soils have low fertility and are highly susceptible to wind erosion. The stony soils have restricted water holding capacity. The land is used mainly for grazing.
MvC	43.3	Undulating rises and low hills formed on calcreted calcarenite, with surface stone and rock covering about 10% of the area. There are very minor saline depressions. Main soils: deep sand - **H2** (V), with thick sand over light sandy clay loam - **H2/G1** (L) on sandy areas and shallow sandy loam - **B3** (M), shallow calcareous loam - **B2** (M) and shallow sand over sandy clay - **B7** (M) on stony ground. The predominant sandy soils have low fertility and are highly susceptible to wind erosion. The stony soils have restricted water holding capacity. The land is used mainly for grazing.
U-A	27.7	Steep, irregular and unstable sandhills. Main soil is deep sand - **H2** (D). This land is fragile, with the deep infertile sands further degraded by past erosion
VWC	2.5	Flats adjacent to Lake Alexandrina, formed on lake floor sediments. There are about 20% swampy depressions. Main soils: black cracking clay - **E1** (V) and swamp soil - **N2** (L). This land is too saline and waterlogged for uses other than light grazing.
VtM	3.2	Strip of sandy shoreline along the northern edge of Lake Albert. The main soil is deep grey sand - **M1** (V) from the adjacent slopes. There are also black cracking clay - **E1** (L) and swamp soil - **N2** (L). This land has limited agricultural potential.
ZC- ZH-	1.5 0.3	Depressions with saline water tables at or near the surface. **ZC-** Depressions with more than 90% salt pans. **ZH-** Depressions with about 50% salt pans and about 50% stony flats. Main soils: swamp soil - **N2** in salt pans, and shallow sandy loam - **B3** on stony flats.

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:

Sandy soils

H2 Deep sand (Arenic, Brown-Orthic Tenosol)
Very thick light brown sand, continuing below 150 cm with calcrete at variable depth.

H2/G1 Thick sand over light sandy clay loam
(Calcareous, Brown-Orthic Tenosol OR Hypercalcic / Lithocalcic, Brown Kandosol / Sodosol)
Very thick pale brown loose sand, overlying a yellowish brown and red mottled clayey sand to light sandy clay loam, grading to a sandy clay loam with soft to rubbly Class III carbonate from 85 cm. The profile becomes sandier with depth.

Shallow stony soils on calcrete

B3 Shallow sandy loam (Petrocalcic, Leptic Rudosol)
Medium thickness non calcareous light sandy loam over calcrete within 20 cm.

B2 Shallow calcareous loamy sand (Petrocalcic Calcarosol)
Medium thickness calcareous loamy sand with variable rubble over calcrete within 20 cm.

B7 Shallow sand over sandy clay (Petrocalcic, Brown Chromosol)
Thin to medium thickness loamy sand over a brown sandy clay loam to sandy clay over rubbly or sheet calcrete within 30 cm.

Flats and Swamps

E1 Black cracking clay (Epipedal, Black / Aquic Vertosol)
Medium thickness hard black cracking clay with coarse blocky structure, becoming greyer and moderately calcareous with depth overlying a buried sand to sandy loam over clay soil at depths ranging from 30 to 100 cm (average 40 cm).

M1 Deep grey sand (Basic, Arenic Rudosol)
Deep, grey coarse to fine sand.

N2 Swamp soil (Hypersalic Hydrosol)
Thin grey calcareous clay loam to clay with increasing rubble, over rubbly calcrete. Soil contains a fluctuating saline water table.

Further information: DEWNR Soil and Land Program