JER Jervois Land System

Stony plains along the western side of the Murray River from Murray Bridge to Wellington

Area: 57.2 km^2

Annual rainfall: 345 – 370 mm average

Geology: The land is underlain by Tertiary sediments - clayey sands, sandy clays, heavy clays and limestones. These are capped by rubbly and sheet calcrete, the characteristic feature of the landscape. The calcrete forms a more or less continuous capping except for an area in the west where dissolution has formed a depression, exposing the underlying Tertiary sediments. Windblown sands as spreads or low dunes are superimposed on the calcrete, but cover less than 20% of the land surface.

Topography: The landscape is a very gently undulating plain. Stony flats and low rises are the predominant features. They are interspersed with low sandy rises and low parallel sandhills. In the west is a well defined depression, more characteristic of the adjoining Brinkley Land System.

Elevation: 10 - 30 m

Relief: Less than 10 m and usually less than 5 m

Soils: Calcareous soils dominate the landscape. Most are rubbly, some are shallow over sheet rock. Sandy soils with more clayey subsoils are limited in extent.

Main soils
Stony flats and rises
A4 Rubbly calcareous loamy sand
B2 Shallow stony calcareous sandy loam on calcrete
B3 Shallow stony non calcareous sandy loam on calcrete
B7 Sand over sandy clay, shallow on calcrete
Sandy rises
G1 Thick sand over sandy clay loam

Minor soils
Depressions
D2 Sandy loam over red clay
F2 Sandy loam over dispersive brown clay
A4 Rubbly calcareous loamy sand
A6 Calcareous clay loam

Main features: The Jervois Land System is characterized by stony flats and low rises. The soils are typically shallow and stony. Although most of the land is arable, restricted water holding capacity is a moderate to severe limitation to productivity. Reefs of sheet calcrete and excessive calcrete rubble interfere with cultivation, and prevent it altogether in places. Limited areas of sand spreads and low sandhills have deeper soils but they are infertile and prone to wind erosion. An isolated depression in the west has deeper, more fertile soils underlain by clays.

Soil Landscape Unit Summary: 5 Soil Landscape Units (SLUs) mapped in the Jervois Land System:

SLU	% of area	Main features #
HuE	1.1	Depressions formed over sandy clay to heavy clay sediments, with minor gilgai patches on clayey sediments. Main soils: sandy loam over red clay - **D2** (E), rubbly calcareous loamy sand - **A4** (C), calcareous clay loam - **A6** (C) and sandy loam over dispersive brown clay - **F2** (L). The D2 soils are deep and moderately fertile, with no significant limitations to productivity. The A4 soils are less fertile and, depending on rubble content, have lower water holding capacities. The A6 and F2 soils can be expected to have restricted drainage due to dispersive clayey subsoils.
QVA	11.4	Very gently undulating stony flats underlain by clayey sediments. Main soils: rubbly calcareous loamy sand - **A4** (E), with shallow stony sandy loam - **B2/B3** (C) and sand over sandy clay, shallow on calcrete - **B7** (L). Calcareous clay loam - **A6** (L) occurs in depressions. The soils are generally shallow but fully arable. Restricted waterholding capacity is the main limitation to production.
QcB	27.8	Stony flats and very gently undulating low rises formed on sheet and rubbly calcrete, and overlain by 10-30% low sandhills. Main soils: rubbly calcareous loamy sand - **A4** (E), with shallow stony sandy loam - **B2/B3** (C) and sand over sandy clay, shallow on calcrete - **B7** (M) on stony ground, and thick sand over sandy clay loam - **G1** (C) on sandy rises. The stony soils are generally shallow but fully arable. Restricted water holding capacity is the main limitation to production. The sandy rises are infertile and prone to wind erosion.
QzA	50.7	Very stony flats formed on calcrete. Main soils: shallow stony sandy loam - **B2/B3** (V) and rubbly calcareous loamy sand - **A4** (L) with sand over sandy clay, shallow on calcrete - **B7** (L). These soils are shallow and stony, and although most of the land is arable, productivity is limited by low moisture holding capacity and rockiness.
UUK	9.0	Gently undulating sandy rises and low parallel sandhills superimposed on the stony flats and rises of **QzA** and **QcB**. Main soils: thick sand over sandy clay loam - **G1** (E), with soils as for **QcB** (E) on intervening stony land. The sandy soils are infertile and prone to wind erosion. The stony soils are shallow with restricted water holding capacity.

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:

Stony flats and rises

B2 Shallow stony calcareous sandy loam (Petrocalcic Calcarosol)
Medium thickness calcareous sandy loam over Class III C carbonate rubble or Class II sheet calcrete.

B3 Shallow stony non calcareous sandy loam (Petrocalcic, Leptic Rudosol)
Medium thickness loamy sand to sandy loam over calcrete.

A4 Rubbly calcareous loamy sand (Supracalcic / Lithocalcic Calcarosol)
Calcareous loamy sand with increasing carbonate nodules with depth.

B7 Sand over sandy clay, shallow on calcrete (Lithocalcic / Supracalcic, Brown Chromosol)
Medium thickness sand to sandy loam over a brown sandy clay loam to sandy clay grading to Class III B or III C rubble from about 20 cm, over calcrete at about 30 cm.

Sandy rises

G1 Thick sand over sandy clay loam (Calcic, Brown Chromosol)
Very thick brownish sand over a brown massive light sandy clay loam at depths ranging from 60 to 120 cm, becoming sandier with pockets of semi hard carbonate.

Depressions

D2 Sandy loam over red clay (Hypercalcic, Red Chromosol)
Thin to medium thickness soft sandy loam, overlying a red sandy clay to clay, very highly calcareous with limited hard nodules and some gypsum from 40 cm. Brown, red and grey clayey sand to sandy clay underlies the soil from 85 cm.

F2 Sandy loam over dispersive brown clay (Hypercalcic, Brown Sodosol)
Thin sandy loam sharply overlying a dispersive brown clay, highly calcareous from about 30 cm, grading to grey and red clay from about 50 cm.

A4 Rubbly calcareous loamy sand (Supracalcic / Lithocalcic Calcarosol)
As for A4 (flats and rises).

A6 Calcareous clay loam (Epihypersodic, Regolithic / Pedal, Hypercalcic Calcarosol)
Calcareous sandy clay loam to light clay, becoming more clayey and calcareous with depth, grading to heavy clay within 120 cm. More clayey types tend to have less carbonate and well developed subsoil structure.

Further information: DEWNR Soil and Land Program