

# KEK Kekwick Land System

(Based on the descriptions by A. K. McCord in "A Description of Land in the Southern Mallee of South Australia", and Potter, Wetherby and Chittleborough (1973) in "A Description of the Land in County Albert, County Alfred and Part of County Eyre, South Australia". Dept. of Agric. S.A. Soil Cons. Branch LD1).

Scattered dunefields of high jumbled sandhills in an area extending from Mindarie in the north west to Wilkawatt in the south to near Meribah in the north east.

**Area:** 607.7 km<sup>2</sup>

**Annual rainfall:** 275 – 350 mm average

**Geology:** The land is underlain by Tertiary sediments, either Blanchetown Clay equivalent or older Loxton / Parilla Sands where the clay is absent. Soft or rubbly carbonates occur in the upper layers of these sediments. Overlying these materials and covering over 80% of the land surface are deposits of wind blown Molineaux Sand.

**Topography:** The landscape is characteristically strongly undulating and dominated by high to moderate jumbled and parabolic sandhills. Between the sandhills are discrete small flats in which the older Tertiary sediments are commonly at or near the surface. Most of the steeper dunes have not been cleared, and would constitute an extreme erosion hazard if they were.

**Elevation:** 45 - 120 m

**Relief:** 5 - 50 m

**Soils:** The soils are almost exclusively sandy, with deep sands predominating, and thick sandy surface soils with clayey subsoils extensive on flats.

#### Main soils

##### *Sandhills*

**H3** Deep bleached sand. Mainly on moderate to high dunes

**H2** Deep red sand. Mainly on low to moderate dunes

##### *Flats*

**G2/G3** Sand over sandy clay loam

#### Minor soils

##### *Flats*

**G1** Gradational loamy sand

**Main features:** The Kekwick Land System is probably the most vulnerable land in the Mallee with respect to wind erosion potential. The predominant deep sands occur for the most part on high jumbled to parabolic dunes which drift very readily following disturbance. The small areas of low sandhills and flats are arable, but due to the combination of low fertility, wind erosion potential, water repellence and small discrete occurrences, are usually not feasible propositions for development.



**Soil Landscape Unit summary:** 10 Soil Landscape Unit (SLUs) mapped in the Kekwick Land System:

SLU	% of area	Main features #
GkA	0.6	Isolated flats and low rises with up to 30% low sandhills.
GIA	1.0	<b>GkA</b> Flats with less than 10% low sandhills.
GIB	0.4	<b>GIA</b> Flats with 10-30% low sandhills. <b>GIB</b> Rises with 10-30% low sandhills. Main soils: <u>sand over sandy clay loam</u> - <b>G2/G3</b> (E) and <u>gradational loamy sand</u> - <b>G1</b> (E) with <u>deep bleached sand</u> and <u>deep red sand</u> - <b>H3/H2</b> (M-C). These soils are infertile and prone to erosion and water repellence, but are nevertheless arable although with low productive potential. Generally they occur in such small areas that development is not practicable.
O-A	6.2	Dunefields dominated by high jumbled dunes, but also including areas of small and moderate sandhills.
OAE	79.9	
OAF	6.5	<b>O-A</b> High to very high sand ridges, either as isolated dunes or in a dunefield with less than 10% swale area.
OAG	1.4	
OAH	3.6	<b>OAE</b> 60-90% high sand ridges.
OAI	0.3	<b>OAF</b> 60-90% moderate to high sand ridges.
OAJ	0.1	<b>OAG</b> 60-90% low to moderate sand ridges. <b>OAH</b> 30-60% high sand ridges. <b>OAI</b> 30-60% moderate sand ridges. <b>OAJ</b> 30-60% low sand ridges. Main soils: <u>deep bleached sand</u> and <u>deep red sand</u> - <b>H3/H2</b> (V-E) on dunes and sandhills, with <u>sand over sandy clay loam</u> - <b>G2/G3</b> (E) and <u>gradational loamy sand</u> - <b>G1</b> (M-E) in swales and flats between the dunes. These landscapes are dominated by deep, highly infertile sands which are strongly water repellent and moderately to extremely susceptible to wind erosion. Although the smaller sandhills of <b>OAG</b> and <b>OAJ</b> are arable, their area is minimal by comparison with the area of moderate to high sandhills which are non arable and should only be grazed when cover levels are adequate.

# 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:***Sandhills***H3** Deep bleached sand (Basic, Arenic, Bleached-Orthic Tenosol)

Very thick bleached loose sand with a thin organically darkened surface, over a yellowish loamy to clayey sand, sometimes weakly calcareous below 100 cm. Mainly on moderate to high dunes.

**H2** Deep red sand (Calcareous, Arenic, Yellow-Orthic Tenosol)

Very thick yellowish red sand over a reddish loamy to clayey sand, weakly calcareous below 100 cm. Mainly on low to moderate dunes.

*Flats***G2/G3** Sand over sandy clay loam (Calcic / Hypercalcic, Brown / Red Sodosol)

Very thick bleached loose sand, organically darkened at the surface, sharply overlying a weakly structured brown or red sandy clay loam to sandy clay, with variable amounts of soft carbonate from about 80 cm, grading to Parilla Sand below 100 cm.

**G1** Gradational loamy sand (Supracalcic, Brown Kandosol)

Thick loamy sand over a brown calcareous sandy clay loam with variable rubbly carbonate grading to Tertiary sediments below 100 cm.

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

