

EDI Edillilie Land System

Very gently undulating plains with saline flats extending from south west of Cummins to Lake Wangary

Area: 363.9 km²

Annual rainfall: 445 – 510 mm average

Geology: The system occupies a Tertiary sedimentary basin. The sediments of the basin comprise clays with sandy lenses. They were extensively lateritized during warm, humid conditions millions of years ago. This led to the accumulation of iron oxides and the formation of extensive laterites. Ironstone gravels are a feature of surface soils formed on these lateritized materials. Relatively recent erosion of the surrounding highlands and subsequent deposition of sediments in the basin has partially buried the lateritized materials. Windblown sands have accumulated in places as low dunes and sand spreads.

Topography: The land system is a very gently undulating plain with an overall fall from north east to south west. Shallow drainage valleys including Pillana Lagoon and Lake Baird in the north, eventually discharge into Lake Wangary which marks the south west extent of the Land System. Surface drainage is impeded by low gradients along drainage depressions, and is finally interrupted by a range of old coastal dunes at Lake Wangary. Rising saline watertables have compounded the problem of restricted drainage, resulting in the development of extensive saline discharge areas in lower lying parts of the land system. A chain of rises along the eastern side probably represents a mostly buried basement rock ridge. Scattered sand rises and low dunes occur throughout.

Elevation: 20 m at Lake Wangary to over 80 m on basement highs in the north-east

Relief: Less than 20 m

- Main soils:**
- J2** Ironstone soil (Ferric, Brown Chromosol)
(Local name – Wanilla) 30 cm sandy loam with a bleached A2 layer containing abundant ironstone gravel, overlying a yellowish brown mottled clay grading to Tertiary sediments.
 - G3** Sand over poorly structured clay (Calcic, Brown Chromosol / Sodosol)
(Local name – Hall) 30 - 40 cm loose sand with a bleached A2 layer, sharply overlying a brown or yellow mottled clay with strong columnar to prismatic structure, calcareous with depth.
 - F1** Loam over brown clay (Eutrophic, Brown / Red Chromosol)
(Local name – Coultta) 20 cm sandy clay loam with some ironstone gravel, over a brown or red mottled clay.
 - J1** Sandy loam over poorly structured brown clay (Ferric, Brown Sodosol / Chromosol)
(Local name – Wanilla, sodic variant) 30 cm sandy loam with a bleached A2 layer containing abundant ironstone gravel, overlying a yellowish brown poorly structured mottled sodic clay.
 - N2** Miscellaneous soil of wet saline flats (Salic Hydrosol)
Miscellaneous wet saline soil influenced by rising saline groundwater tables.
- Minor soil:**
- H3** Bleached siliceous sand (Basic, Arenic, Bleached-Orthic Tenosol)
(Local name – Lowan) Deep bleached sand, organically darkened at the surface, becoming yellower with depth.



Main features: The Edillilie Land System is characterized by very gently undulating slopes with ironstone gravelly sandy loams or bleached sands overlying clayey subsoils. Impeded drainage, low inherent fertility and acidification are features of these soils. Salt affected land on lower lying areas is widespread. Scattered sandy rises are characterized by very low fertility soils prone to wind erosion and water repellence.

Soil Landscape Unit summary: 13 Soil Landscape Units (SLUs) mapped in the Edillilie Land System:

SLU	% of area	Main features
FRB FRK FRL FRM FRP	12.5 45.6 3.4 1.0 0.9	<p>Flats to gentle slopes formed on alluvial and colluvial sediments. Saline seepage is a feature of these landscapes.</p> <p>FRB Very gentle slopes of 1-3% with up to 2% of land affected by saline seepage. FRK Flats with slopes of less than 1%, and 2-10% of land affected by saline seepage. FRL Very gentle slopes of 1-3% with 2-10% of land affected by saline seepage. FRM Gentle slopes of 3-5% with 2-10% of land affected by saline seepage. FRP Flats with 10-50% of land affected by saline seepage.</p> <p>Main soils: <u>ironstone soil</u> (Wanilla), with <u>sand over poorly structured clay</u> (Hall), <u>loam over brown clay</u> (Coult), and <u>sandy loam over poorly structured brown clay</u> (Wanilla, sodic variant) in lower lying and salt affected areas. These soils are deep but drainage is impeded by the clayey subsoils which tend to perch water. Inherent fertility is moderately low due to the degree of leaching and either the high ironstone gravel content which restricts phosphate availability, or low clay content. The soils are also susceptible to acidification. Salinization is a major issue, particularly on lower slopes and low lying areas. The sandy surface soils are susceptible to wind erosion when exposed.</p>
FVD	0.1	<p>Gently to moderately inclined slopes and low hills formed on lateritized basement rock, largely overlain by lateritized relict Tertiary sediments. There are sporadic saline seepages throughout (up to 2% of land surface affected - more where indicated).</p> <p>FVD Rolling slopes</p> <p>Main soils: <u>ironstone soils - J2a, J2b, J2c</u> and <u>J1</u> (very extensive, J1 minor), with <u>acidic loam over brown to red clay on rock - K2</u>, <u>acidic sandy loam over red to brown clay on rock - K3</u>, and <u>acidic sandy loam over red to brown sodic clay - D7/K3</u> (limited on steeper dissected slopes), <u>shallow soil on rock - L1</u> (minor on steeper rocky slopes), <u>sand over poorly structured clay - G3</u> (sand spreads), and <u>deep clay loam - M2</u> and <u>sandy loam over poorly structured brown clay - F2</u> (limited in drainage depressions). The soils are generally deep, with adequate water holding capacities. Fertility is affected by strong leaching and acidification. High ironstone contents reduce phosphate availability. Waterlogging affects many soils - a result of tight clayey subsoils close to the surface. The soils are generally erodible, and on steeper slopes erosion potential is high. Widespread (although minor overall) salinity indicates a need for increased water use efficiency.</p>
HZB	2.3	<p>Rises with slopes of up to 5% formed on deeply weathered basement rock.</p> <p>Main soil: <u>loam over brown clay</u> (Coult). These soils are deep and moderately fertile. Slopes are susceptible to water erosion.</p>
OBK	11.0	<p>Irregular shaped sandy rises.</p> <p>Main soils are <u>bleached siliceous sand</u> (Lowan) and <u>sand over poorly structured clay</u> (Hall). These soils are inherently infertile and susceptible to water repellence and wind erosion.</p>
ZA- ZB- ZD- ZH- ZL-	14.5 1.2 2.0 5.4 0.1	<p>Salt affected flats.</p> <p>ZA- Moderately to highly saline flats with more than 50% of land salt affected and supporting mainly halophytic plants. ZB- Very saline flats dominated by halophytic plants with extreme salt tolerance. ZD- Salt flats and salt lakes, mostly bare. ZH- Complex of salt affected land including ZA-, ZB-, and ZD- (above). ZL- Gypseous lunettes.</p> <p>Main soils: <u>sandy loam over poorly structured brown clay</u> (Wanilla, sodic variant) in better drained areas, and <u>wet saline soil</u> in poorly drained saline areas. Deep profiles dominated by fine grained gypsum occur on lunettes. This land is fragile, inherently unproductive and vulnerable to erosion. Revegetation with salt tolerant grasses and shrubs or trees provides grazing and assists in stabilizing the land and lowering water tables.</p>

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

