

RDC Ravine des Casoars Land System

A low lying land system consisting of drainage depressions, flats, and gullies (including the majority of the Ravine des Casoars gully).

Area: 21.2 km²

Annual rainfall: 700 - 800 mm average

Geology: Underlying rock is early Cambrian age Kanmantoo Group rock: Balquhidder Formation grey dirty meta-sandstone underlies the very north of the system; and Middleton Sandstone consisting of grey meta-sandstone underlies the rest of the system. This rock has near surface to surface expression in many areas, particularly on creek gully slopes. Some remnant ironstone colluvium occurs: consisting of mottled clays overlain by ironstone gravel, with weathered rock at depth. Other areas have soils formed in mottled clays, but lack ironstone gravel, and also have weathered rock at depth. Deep alluvial deposits of loamy sediments occur in drainage flats along eastern parts of the system; while deep deposits of wind borne sand occur on drainage flats, flats, plains and slopes throughout the central and western parts of the system.

Topography: This is a low lying area sandwiched between highly dissected plateau to the east and rises with coastal deposits to the west. Slopes are typically from 0 - 5%, however, in the creek gully slopes up to 100% occur. In the north some surface drainage exits to the sea at Harveys Return; while most drainage lines enter the Ravine des Casoars gully, which exits to the sea on the west coast of Kangaroo Island.

Elevation: From 200 m in the northeast, to 10 to 20 m in the lower parts of the creek gullies. Elevation is typically from 70 to 100 m above sea level.

Relief: Up to 80 m in the Ravine des Casoars, typically from 10 to 30 m

Main soils:

K4	stony sandy loam over brown acid clay on weathered rock
F2-F1-G5	sandy loam to loamy sand over brown acid clay
H3	bleached siliceous sand
I2	wet highly leached sand
J2-M3	ironstone soils

Minor soils:

M1-N1	deep loamy soil
L1	shallow rocky soil

Main features: This land system forms part of the Flinders Chase National Park. Nature conservation is the main issue. Excessive wetness occurs due to the low lying nature of most of the land, and also due to the poor drainage characteristics of the texture contrast soils which have relatively impermeable clayey subsoils which are often dispersive. Topsoil textures are mostly sandy to loamy. Deep sandy soils are leached and infertile. Creek gullies have many areas of stony soils on moderate to steep slopes.



Soil Landscape Unit summary: Ravine des Casoars Land System (RDC)

SLU	% of area	Main features #
AOD AOm	9.0 3.3	<p>Creek gullies with rocky and stony soils.</p> <p>Main soils: stony texture contrast soil on rock or weathered rock K4 (<i>stony Brown Sodosol</i>). With uniform shallow loams on rock L1 (<i>rocky Tenosol</i>): typically with native vegetation dominated by drooping sheoaks. Minor to limited areas of deeper texture contrast soil F1-G5 (<i>Brown Sodosol</i>), especially in 'AOm' areas.</p> <p>AOD – creek gully: slopes and drainage lines (slopes 20-80%, relief from 20-70m, 6e, 3-4w).</p> <p>AOm – creek gullies: slopes and drainage lines (slopes 5-20%, 4e, 4w).</p> <p>Summary: moderate to steep, stony to rocky gully slopes.</p>
CCA CCB CCE	7.6 2.7 4.7	<p>Creek gullies, slopes and flats with stony soils.</p> <p>Main soils: texture contrast soil on rock or weathered rock K4 (<i>stony Brown Sodosol</i>); and deeper texture contrast soil F2-G5 (<i>Brown Sodosol</i>). Minor to limited areas of ironstone soil J2 (<i>Ferric Brown Sodosol</i>); and minor to limited areas of deep loamy soil M1 (<i>loamy Tenosol</i>) and/or deep sandy soil H3 (<i>sandy Tenosol</i>), which can be found in drainage flats.</p> <p>CCA – flats (slopes 0-1%, 1e, 4w)</p> <p>CCB – flats and drainage depressions (slopes 0-2%, 2-1e, 4w)</p> <p>CCE – creek gullies: slopes, drainage flats & drainage lines (slopes 0-15%, 4-3e, 4w).</p> <p>Summary: stony areas.</p>
CDE	25.9	<p>Creek gully with stony soils and deep sandy soils.</p> <p>Main soils: texture contrast soil on rock or weathered rock K4 (<i>stony Brown Sodosol</i>); deep sands H3 (<i>sandy Tenosol</i>); and deeper texture contrast soil F1-G5 (<i>Brown Sodosol</i>).</p> <p>CDE – creek gully: slopes and drainage line (slopes 3-50%, typically 10-30%, 3-4e, 3-4w).</p> <p>Summary: moderate to steep gully slopes with stony areas, as well as, sandy areas with deep infertile sands. The native vegetation of the area is dominated by eucalypt trees, especially on non stony areas (eg deep sands).</p>
FVA FVB	1.7 0.5	<p>Slopes and plains mostly with ironstone soils.</p> <p>Main soils: ironstone soil J2 (<i>Ferric Brown Sodosol</i>); and texture contrast soil on rock or weathered rock K4 (<i>stony Brown Sodosol</i>). Probably with some deeper texture contrast soil F2 (<i>Brown Sodosol</i>).</p> <p>FVA – plains and slight slopes (slopes 0-1.5%, 1e, 3-4w)</p> <p>FVB – exposed slopes (slopes 1-4%, 2-3e, 3w).</p> <p>Summary: minor ironstone dominant areas.</p>
LzE	12.9	<p>Creek valley with mostly loamy soils.</p> <p>Main soils: deep loamy soil M1 (<i>loamy Tenosol</i>) where eucalypt trees dominate; texture contrast soil F1-G5 (<i>Brown Sodosol</i>), some overlying weathered rock K4 (<i>stony Brown Sodosol</i>), especially occurring in many poorly drained 'side-arm' drainage depression areas where low scrub dominates; and deep peaty soil N1 (<i>peaty Tenosol</i>) on very wet valley floor areas where bracken fern dominates. Rock is exposed along main creek line.</p> <p>LzE – creek valley (slopes 0-5%, 5-7w, 2-3e)</p> <p>Summary: wet; very wet on valley floor.</p>
PiA PiE	4.4 6.9	<p>Flats and drainage areas with mostly sandy soils.</p> <p>Main soils: highly leached sand I2 (<i>Podosol</i>); deep sand H3 (<i>sandy Tenosol</i>); and some ironstone soil J2-M3 (<i>Ferric Brown Sodosol</i> or <i>Ferric Tenosol</i>).</p> <p>PiA – flats (slopes <1%, 4w).</p> <p>PiE – drainage depressions/flats (slopes 0-1%, 5w).</p> <p>Summary: infertile and wet low lying areas, mostly dominated by low scrub (especially 'PiA' areas).</p>
PoA PoB PoE	4.7 0.8 13.5	<p>Flats, drainage areas, and some slopes with mostly sandy soils.</p> <p>Main soils: texture contrast soil G5-F1 (<i>Brown Sodosol</i>) typically with very thick topsoil; often with some ironstone soil J2-M3 (<i>Ferric Brown Sodosol</i> or <i>Ferric Tenosol</i>); and deep sand H3 (<i>sandy Tenosol</i>).</p> <p>PoA – flats (slopes <1%, 4w).</p> <p>PoB – lower slopes (slopes 2-5%, 2-3e, 4-3w)</p> <p>PoE – drainage depression (slopes 0-1%, 5w)</p> <p>Summary: low lying areas dominated by eucalypt trees.</p>
WBB	0.9	<p>Rocky coastal cliffs.</p> <p>WBB – rocky coastal cliffs (slopes >100%, 40-80m high, 7e)</p>



Xn-	0.1	Closed depression. Main soils: texture contrast soil F2-G5 (<i>Brown Sodosol</i>). Xn- – depression (7w). Summary: prone to wetness and flooding.
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Classes in the 'Soil Landscape Unit summary' table (eg. 2-1e, 3w, 2y, etc) describe the predominant soil and land conditions, and their range, found in Soil Landscape Units. The number '1' reflects minimal limitation, while increasing numbers reflect increasing limitation. Letters correspond to the type of attribute:

a - wind erosion e - water erosion f - flooding g - gullyng
r - surface rockiness s - salinity w - waterlogging y - exposure

Detailed soil profile descriptions:

Main soils:

- K4** Stony sandy loam over brown acid clay on weathered rock (*stony Brown Sodosol*). Typically a medium to thick light sandy loam to loamy sand topsoil, with meta-sandstone and often quartz and ironstone fragments, and often with a bleached subsurface layer, overlying olive-brown to yellow-brown clay with some mottles, which is underlain by weathered rock at moderate depth. The clayey subsoil is typically dispersive. Soil pHs are strongly acidic to acidic. Found on slopes, especially gully slopes, and on flats; often with native vegetation dominated by eucalypt trees.
- F2-F1-G5** Sandy loam to loamy sand over brown acid clay (*Brown Sodosol*). Typically a medium to very thick light sandy loam to loamy sand topsoil, often with a bleached subsurface layer, overlying olive-brown to yellow-brown clay with some mottles. The clayey subsoil is typically dispersive. In lower lying situations a transition layer of sandy clay loam to sandy light clay can occur between topsoil and subsoil. Soil pHs are strongly acidic to acidic. Some ironstone nodules are often found in the lower topsoil, or as some scattered nodules on the soil surface. Found on flats and slopes.
- H3** Bleached siliceous sand (*sandy Tenosol*). Deep yellow-brown sands with a bleached layer. The bleached layer often extends below 100cm. Soil pHs are acidic to strongly acidic. Found in flats, depressions, and on slopes; often with native vegetation dominated by eucalypt trees.
- I2** Wet highly leached sand (*Podosol*). Highly leached deep sands with a bleached subsurface layer, and an accumulation of aluminium-organic-iron compounds in the subsoil. Soil pHs are strongly acidic. The subsoil can be underlain by ironstone gravel. Found in wet flats and depressions.
- J2-M3** Ironstone soils (*Ferric Brown Sodosol* or *Ferric Tenosol*). Usually a medium to thick light sandy loam to loamy sand topsoil with ironstone gravel, overlying yellow-brown to olive-brown clay with mottles. The clayey subsoil is typically dispersive. Soil pHs are strongly acidic to acidic. Found on slightly raised areas. In addition, in areas with deep sandy soils, some of these soils have a sandy subsoil with thick ironstone gravel.

Minor soils:

- M1-N1** Deep loamy soil (*loamy to peaty Tenosol*). Deep sandy loams, often with a bleached subsoil layer. The surface horizon is often a loamy peat; in the very wet conditions on the valley floor the soil can be very dark and highly organic throughout. Soil pHs are acidic. Alluvial soils found in drainage depressions.
- L1** Shallow rocky soil (*rocky Tenosol*). Stony to rocky loamy sand to sandy loam, often with a bleached subsurface layer, overlying weathered meta-sandstone at shallow depth. Soil pHs are strongly acidic to acidic. Found on some of the steepest gully slopes, usually with native vegetation dominated by drooping sheaks.

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

