

# ORR Orroroo Land System

- Area:** 83.6 km<sup>2</sup>
- Landscape:** Sloping plains north of Orroroo
- Annual rainfall:** 270 – 330 mm average
- Geology:** Unconsolidated Quaternary slope deposits
- Topography:** The land consists of broad, flat to gently sloping plains. Gullying is extensive on long slopes which may also be gravelly, especially on upper parts closer to rocky ranges.
- Elevation:** 450 – 460 m on upper slopes, 360 – 370 m asl on foot slopes
- Relief:** Slopes of 2 - 2.5% are common on upper slopes grading to less than 1% on lower slopes. Relief is usually around 20 m over 1.5 km
- Typical soils:** Calcareous soils are common on pediments, often with much rubble and stone in subsoils. Loam to clay loam over red clay subsoils. These soils occur on gently sloping plains and are often stony.  
Thin loam to clay loam over fine structured friable red clay subsoils. These soils (pedaric Sodosols) are typically found along the foot-slopes of sloping plains and on broad alluvial plains. The surface layers are highly erodible and the soils usually have moderate to severe scalding, and are slightly to moderately saline.
- Main soils:**
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| <b>A5</b> (39%) Rubbly calcareous loam on clay | (Supracalcic-Lithocalcic Calcarosol on clay) |
| <b>D4</b> (17%) Loam over pedaric red clay     | (Pedaric Red Sodosol-Dermosol)               |
| <b>C1</b> (10%) Gradational sandy loam         | (Calcic-Hypercalcic Kandosol-Calcarosol)     |
- Minor soils:**
- |   |  |
|---|--|
| <b>D2</b> (8%) Loam over red clay               | (Calcic-Hypercalcic Red Chromosol-Sodosol)                   |
| <b>A2</b> (6%) Calcareous loam on rock          | (Paralithic Calcarosol)                                      |
| <b>C3</b> (5%) Friable gradational clay loam    | (Calcic-Hypercalcic Red Dermosol-Calcarosol)                 |
| <b>A6</b> (5%) Gradational calcareous clay loam | (Pedal Hypercalcic-Lithocalcic Calcarosol on clayey subsoil) |
| <b>D1</b> (3%) Loam over clay on rock           | (Shallow Calcic-Hypercalcic Red Chromosol)                   |
| <b>M1</b> (3%) Deep sandy loam                  | (Brown-Grey-Red Kandosol-Tenosol)                            |
- Summary:** The Orroroo Land System is a series of pediments slopes, east of the hilly Oladdie Hills and Walloway Land Systems. Main soils: rubbly calcareous gradational soils in association with texture contrast soils with red pedaric (friable, sodic) subsoils. Red gradational soils also are in significant minor association.



**Soil Landscape Unit summary:** Orroroo Land System (ORR)

SLU	% of area	Component	Main soils	Prop#	Features
JFG	8.0	Gently undulating pediments	D2D4C1	D	Gently undulating pediments with mostly red texture contrast soils with clay loam surfaces, calcareous soils occupy more than 20% and other gradational soils occupy more than 10%. 10-20% of land is gullied and subsoils are moderately saline. Slopes are 1-3%, relief is less than 9m. Main soils: <u>Loam over red clay - D2</u> , <u>Loam over pedaric red clay - D4</u> and <u>Gradational sandy loam - C1</u> .
JIG	0.4	Gently sloping plain	D4D1A5	D	<p>Gently sloping alluvial plains with red texture contrast and calcareous soils.</p> <p><b>JIG</b> Gently sloping alluvial plain Gullyng affects 10-20% of land and scalding affects 0-5%. Subsoils are sometimes moderately saline. Slopes are 1-3%, relief is less than 9m.</p> <p><b>JII</b> Gently sloping alluvial plain Gullyng affects 5-50% of land, most severe along watercourses. Scalding affects over 50% of land. Subsoils are moderately saline. Slopes are 1-3%, relief is less than 9m. Main soils: <u>Loam over pedaric red clay - D4</u>, <u>Loam over clay on rock- D1</u> and <u>Rubblly calcareous loam on clay - A5</u>. Minor soils include <u>Deep moderately calcareous loam - A3</u> and <u>Shallow calcareous loam on calcrete - B2</u>.</p>
JII	5.0	Gently sloping plain	D4D1A5	D	
JMV	2.7	Gently sloping plain	D2D4A6	D	Gently sloping plains with stony, pedaric, red, texture contrast soils with quartz gravel on the surface.  10-50% of land is scalded. Slopes are 1-3%, relief is less than 9m. <b>JMY</b> Creek flat with unstable banks; more than 20% of land is gullied and 10-5-% is scalded. Main soils: <u>Loam over red clay - D2</u> , <u>Loam over pedaric red clay - D4</u> and <u>Gradational calcareous clay - A6</u> .
JNI	6.9	Gently sloping pediments	D4D2A5	D	Gently sloping pediment plain with non-stony pedaric, texture contrast soils with calcareous subsoils. Surface textures are clay loamy most commonly.  Gullyng affects up to 10-20% of land and scalding affects 5-10%. Subsoils are moderately saline. Slopes are 1-3%, relief is < 9m. Main soils: <u>Loam over red clay - D2</u> , <u>Loam over pedaric red clay - D4</u> and <u>Rubblly calcareous loam on clay - A5</u> . Red clay soils occur in minor association.
KAB	11.6	Gently sloping pediment	C1A2	D	<p>Pediments with well-structured, often calcareous, gradational texture-increase soils formed in outwash sediments.</p> <p><b>KAB</b> Gently sloping pediment with 0-5% gullied land and 0-5% scalded. Subsoils are moderately saline. Slopes are 1-3%, relief is less than 9m.</p> <p><b>KAC</b> Undulating pediments with 0-5% gullied land and 0-5% scalded. Slopes are 3-10%, relief is less than 9m. Main soils: <u>Gradational sandy loam - C1</u> and <u>Calcareous loam on rock - A2</u>.</p>
KAC	0.3	Undulating pediments	C1A2	D	
KDG	10.6	Gently sloping pediments	C3A5	D	Gently sloping pediments derived from, a range of Pound Quartzite formation rocks. Slopes are 1-3%, relief is less than 9m.  Main soils: <u>Friable gradational clay loam - C3</u> and <u>Rubblly calcareous loam on clay - A5</u> .



KFG	24.9	Gently undulating pediments	A5	D	Pediments with calcareous gradational soils and more than 20% red pedaric texture contrast soils.
KFH	10.9	Undulating pediments	A5	D	<b>KFG</b> Gently undulating pediment with 10-20% of land gullied and 0-5% is scalded. Subsoils are moderately saline. Slopes are 1-3%, relief is less than 9m. <b>KFH</b> Undulating pediment with 10-20% of land gullied. Slopes are 3-10%, relief is less than 9m.  Main soils: <u>Rubbly calcareous loam on clay</u> - <b>A5</b> with over 20% <u>Loam over pedaric red clay</u> - <b>D4</b> .
KGB	0.6	Gently undulating pediments	C3C1	D	Gently undulating pediments with sandy surface-textured red gradational soils with calcareous subsoils. 5-10% of land is scalded and isolated patches of gullying occurs (0-5%). Slopes are 1-3%, relief is less than 9m.  Main soils: <u>Friable gradational sandy clay loam</u> - <b>C3</b> and <u>Gradational sandy loam</u> - <b>C1</b> .
KJC	1.0	Undulating pediments	C4C3A6	D	Pediments with clay loam surface-textured red gradational soils with calcareous subsoils and gradational calcareous soils. Subsoils are moderately saline. <b>KJC</b> Undulating pediments with 0-5% gullying. Subsoils have moderate salinity. Slopes are 3-10%, relief is less than 9m.
KJJ	1.0	Drainage line	C4C3A6	D	<b>KJJ</b> Drainage line with more than 20% gullying.  Main soils: <u>Hard gradational clay loam</u> - <b>C4</b> , <u>Friable gradational sandy clay loam</u> - <b>C3</b> and <u>Gradational calcareous clay</u> - <b>A6</b> .
KMH	7.4	Pediment	A6A5	D	Moderately sloping pediment on which gradational calcareous soils are dominant, and in combination with red texture contrast soils occupy over 90% of the land. Subsoils are moderately saline. Slopes are 3-10%, relief is less than 9m.  Main soils: <u>Gradational calcareous clay</u> - <b>A6</b> and <u>Rubbly calcareous clay loam on clay</u> - <b>A5</b> . <u>Loam over red clay</u> - <b>D2</b> occurs on less than 30% of land.
KQI	1.0	Gently undulating pediments	A5	V	Gently undulating pediments with shallow basement-rises in complex and with mostly calcareous gradational soils. Up to 50% of land on pediments is scalded and up to 10% is gullied. Rises have little or no scalds and gullies. Slopes are 1-3%, relief is less than 9m. Main soils: <u>Rubbly calcareous loam on clay</u> - <b>A5</b> on pediments and <u>Calcareous loam on rock</u> - <b>A2</b> on rises.
		Shallow rises	A2	C	
XAZ	0.9	Flood plain	M1M3 D4	D	Flood plain with mixed alluvium. Soil surfaces are scalded with up to 50% of land affected. Main soils: <u>Deep alluvial loam</u> - <b>M1</b> , <u>Deep gravelly soil</u> - <b>M3</b> and <u>Loam over pedaric red clay</u> - <b>D4</b> . Prone to flooding.
XGT	4.2	Watercourse	M3M1	D	Drainage depressions and watercourses with gravelly loamy alluvial soils. <b>XGT</b> Watercourse with eroded, unstable banks.  Main soils: <u>Deep gravelly soil</u> - <b>M3</b> , <u>Deep alluvial loam</u> - <b>M1</b> .
XHB	1.0	Creek flats	M1C1C3	D	Alluvial plains and creek flats with mostly coarse textured soils.
XHT	1.7	Drainage line	M1C1C3	D	<b>XHB</b> Creek flats with eroded watercourses. <b>XHT</b> Drainage line with more than 20% of banks eroded and up to 5% scalded. Main soils: <u>Deep alluvial loam</u> - <b>M1</b> , <u>Gradational sandy loam</u> - <b>C1</b> and <u>Friable gradational sandy clay loam</u> - <b>C3</b> .



# PROPORTION codes assigned to Soil Landscape Unit (SLU) components:

D	Dominant in extent (>90% of SLU)	C	Common in extent (20–30% of SLU)
V	Very extensive in extent (60–90% of SLU)	L	Limited in extent (10–20% of SLU)
E	Extensive in extent (30–60% of SLU)	M	Minor in extent (<10% of SLU)

**Detailed soil profile descriptions:**

**A2/L1** Shallow calcareous loam (Paralithic, Hypercalcic / Lithocalcic Calcarosol)(A2) OR Shallow stony loam (Calcareous, Paralithic, Leptic Tenosol)(L1)

**A5** Rubbly calcareous loamy sand on clay (Supracalcic-Lithocalcic Calcarosol on clay)  
 Calcareous loamy sand topsoil grading into loamy-clay loamy subsoil on a clayey substrate. Usually rubbly. Clayey substrate occurs at >60 cm and <120 cm.

**A6** Gradational calcareous clay loam (Pedal Hypercalcic-Lithocalcic Calcarosol on clayey subsoil)  
 Calcareous loams to clay loams grading into brown-red clay. Often rubbly.

**B2** Shallow calcareous loam on calcrete (Petrocalcic Calcarosol-Rudosol)  
 Shallow, grey to reddish calcareous sandy to clay loamy soil on calcrete. This includes calcareous Petrocalcic Rudosols.

**C1** Gradational sandy loam (Calcic-Hypercalcic Kandosol-Calcarosol)  
 Friable sandy to loamy topsoil grading into massive red-brown alkaline loamy to clay loamy subsoil.

**C3** Gradational clay loam (Calcic / Hypercalcic Red Dermosol)  
 Loam to clay loam grading to a friable red clay with soft Class I carbonate within 50 cm, grading to alluvium within 100 cm.

**C4** Hard gradational clay loam (Calcic-Hypercalcic Sodic Red Dermosol-Calcarosol)  
 Topsoil <30 cm over a poorly structured subsoil. Often hard setting clay loam to loam grading into prismatic/poorly structured/sodic red (-brown) alkaline clayey to clay loamy subsoil. Includes eroded former texture contrast soils.

**D1** Loam over red clay on rock (Hypercalcic / Calcic, Red Chromosol / Sodosol)  
 Medium thickness hard gravelly loam over red clay, friable and finely structured, calcareous with depth, grading to weathering basement rock within 100 cm.

**D2** Hard loam over red clay (Calcic / Hypercalcic, Red Chromosol)  
 Hard setting sandy loam to clay loam (with variable quartzite stones) abruptly overlying a well structured red clay with soft Class I carbonate at depth.

**D4** Loam over red friable clay (Calcic, Pedaric, Red Sodosol)  
 Thin to medium thickness fine sandy loam to loam over finely structured friable red clay, calcareous from about 50 cm, grading to fine or medium grained alluvium.

**M1** Alluvial loam (Orthic Tenosol)  
 Very thick loam with variable gritty or more-clayey lenses, formed over recent alluvium.

**M3** Deep gravelly soil (Gravelly Kandosol-Tenosol)  
 Deep uniform loamy alluvial soils with at least 50% gravel in the major part of the profile.

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

