

WCK Wallaby Creek Land System

- Area:** 29 km²
- Landscape:** Scalded and gullied, undulating low hills and rises with red clayey soils. Tertiary silcrete and ironstone surface gravels are common. Named from Wallaby Creek which flows through the area.
- Annual rainfall:** 225 – 250 mm average
- Geology:** Tertiary clays and gravels on plateaux remnants with associated pediments and some rises and low hills on Tapley Hill Formation calc-siltstones.
- Topography:** Low often rounded to flat-topped hills and rises with broad gentle to undulating slopes. Drainage line are mostly incised and gullied.
- Elevation:** Mostly the summit surfaces are around 295 - 300 m asl, but rise occasionally to 309 m.
- Relief:** Slopes are 2 - 5% commonly, but reach 8 - 10% on dissected slopes. Relief is up to 20 to 30 m but is only a few metres on plateau surfaces.
- Typical soils:** Structured red clay with surface gravels containing silcrete, ironstone, quartz and siltstone (Vertosols/Dermosols) occur on gently sloping to flat plateau remnants and pediments
Red or grey calcareous loam over rubbly clay loam on hard rock (Calcarosols) occur on slopes and pediments.
Shallow calcareous loam over hard rock (Tenosols/Rudsols) sometimes with calcrete (Calcarosols) above the rock
- Main soils:**
- D4** (21%) Loam over pedaric red clay (Pedaric Red Sodosol-Dermosol)
 - C3** (21%) Friable gradational clay loam (Calcic-Hypercalcic Red Dermosol-Calcarosol)
 - D6** (16%) Ironstone gravelly sandy loam over red clay (Ferric(?) Red Chromosol)
 - A5** (10%) Rubbly calcareous loam on clay (Supracalcic-Lithocalcic Calcarosol on clay)
- Minor soils:**
- A2** (6%) Calcareous loam on rock (Paralithic Calcarosol)
 - C4** (4%) Hard gradational clay loam (Calcic-Hypercalcic Sodic Red Dermosol-Calcarosol)
 - A6** (4%) Gradational calcareous clay loam (Pedal Hypercalcic-Lithocalcic Calcarosol on clayey subsoil)
 - B2** (4%) Shallow calcareous loam on calcrete (Petrocalcic Calcarosol-Rudosol)
 - D2** (4%) Loam over red clay (Calcic-Hypercalcic Red Chromosol-Sodosol)
- Summary:** The Wallaby Creek Land System is relatively small, being only 29 km² in area. It lies between the Willochra Plain to the west and the Horseshoe Range to the East. Low plateaux remnants and rises with red clayey, often ironstone gravelly, soils are typical. The soils have developed in deeply weathered rocks and/or sediments of Tertiary age. Calcareous soils over calc-siltstone are common on slopes.



Soil Landscape Unit summary: Wallaby Creek Land System (WCK)

SLU	% of area	Component	Main soils	Prop#	Notes
ADj	3.0	Steep low hills	L1RR	D	Steep low hills with very shallow stony calcareous soils formed on Skillagollee Dolomite and calcareous fine-grained rock, with eroded watercourses and sheet erosion. Relief is 30-90m, slopes are 30-50%. Main soils: <u>Shallow stony soils on rock - L1</u> and <u>Calcareous clay loam on rock - A2</u> . <u>Bare rock - RR</u> is common. Non-arable.
DJm	52.8	Undulating rises	D4D6 C3	D	Undulating rises with shallow red duplex soils associated with deeply weathered kaolinised and ferruginised rocks. 5-10% of land is scalded and 10-20% is gullied. Relief is 9-30m, slopes are 3-10%. Main soils: <u>Loam over pedaric red clay - D4</u> , <u>Ironstone-gravelly sandy loam over red clay - D6</u> and <u>Friable gradational sandy clay loam - C3</u> .
EHW	0.9	Undulating rises	A2L1	V	Undulating rocky rises and pediments on calcareous siltstones and limestones such as those of the Tapley Hill Formation, Wonoka Formation and the ABC Range Quartzite of the Wilpena Group. The soil-landscape units are also associated with Bunyeroo Formation shales with some outwash contribution from calcareous Wonoka Formation calc-siltstones. Relief is less than 30m, slopes are 3-10%. 5-50% of land is scalded. Main soils: Rocky rises: <u>Shallow stony soils on rock - L1</u> and <u>Bare rock - RR</u> . Plains and Pediments: <u>Calcareous loam on rock - A2</u> , <u>Loam over poorly structured clay on rock - D7</u> and <u>Shallow stony soils on rock - L1</u> .
		Undulating pediments	A2	C	
EZm	10.0	Undulating rises	A2A5 B2	V	Undulating rises with rocky outcrops with mostly shallow calcareous soils on weathered siltstones of the Tapley Hill Formation and the Tarcowie Siltstone. Gullying affects around 20% of land and scalding affects around 15%. Slopes are 3-10%, relief is less than 30m. Main soils: Rises: <u>Calcareous loam on rock - A2</u> , <u>Rubbly calcareous loam on clay - A5</u> and <u>Shallow calcareous loam on calcrete - B2</u> . Rocky outcrops: <u>Bare rock - RR</u> . Pediments: <u>Calcareous loam on rock - A2</u> , <u>Rubbly calcareous loam on clay - A5</u> and <u>Shallow calcareous loam on calcrete - B2</u> .
		Rocky outcrops	RR	C	
JKo	1.7	Creek flat	D1A3 A5	D	Creek flat with mostly sandy loam surfaced red duplex soils and calcareous gradational soils. 5-10% of land is scalded and more than 20% is gullied. Main soils: <u>Sandy loam over clay on rock - D1</u> , <u>Deep moderately calcareous sandy loam - A3</u> and <u>Rubbly calcareous loam on clay - A5</u> .
JNI	0.8	Gently sloping pediments	D4D2 A5	D	Gently sloping pediment plain with non-stony pedaric, texture contrast soils with calcareous subsoils. Surface textures are clay loamy most commonly. Gullying affects up to 50% of land, most severe along watercourses. Scalding affects nearly 50% of land. 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>Rubbly calcareous loam on clay - A5</u> . Red clay soils occur in minor association.



JXqz	5.6	Gently undulating pediment	D2	V	Gently undulating pediments with texture contrast soils in complex with rocky rises. Most soils have clay loam surfaces. More than 20% of land is gullied and over 50% is scalded. Slopes are 1-3% on flats and 3-10% on rises. Main soils: <u>Loam over red clay</u> - D2 on flats and pediments; <u>Loam over clay on rock</u> - D1 on rocky rises.
		Rocky rises	D1	C	
KGy	2.0	Creek flat	C3C1	D	Pediments and plains with sandy surface-textured red gradational soils with calcareous subsoils. KGy Creek flat with more than 20% gullied banks and 5-10% scalded land. Main soils: <u>Friable gradational sandy clay loam</u> - C3 and <u>Gradational sandy loam</u> - C1 .
KJB KJG	11.0 2.4	Gently undulating pediment	C4C3 A6	D	Pediments with clay loam surface textured red gradational soils with calcareous subsoils and gradational calcareous soils. KJB Gently undulating pediments. Slopes are 1-3%, relief is less than 9m. KJG Gently undulating pediments with up to 20% gullying. Slopes are 1-3%, relief is less than 9m. Main soils: <u>Hard gradational clay loam</u> - C4 , <u>Friable gradational sandy clay loam</u> - C3 and <u>Gradational calcareous clay</u> - A6 .
		Gently undulating pediment	C4C3 A6	D	
KLG	4.9	Gently undulating pediment	A5	D	Pediments with predominantly calcareous gradational soils KLG Gently undulating pediments with 10-20% gullied and less than 5% scalded. Slopes are 1-3%, relief is less than 9m.
KLI	4.8	Gently undulating pediment	A5	D	KLI Gently undulating pediments with 5-10% scalded land and 5-10% gullied. Slopes are 1-3%, relief is less than 9m. Main soils: <u>Rubbly calcareous loam on clay</u> - A5 .

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)

A3 Deep moderately calcareous (sandy) loam (Calcic Calcarosol)

Calcareous (sandy) loam topsoil grading into loamy-clay loamy subsoil without a significant CO₃ buildup in the subsoil (<20% CO₃ in subsoil). Pediment type Calcarosols.

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 a finely structured friable red clay, calcareous from about 50 cm, grading to fine or medium grained alluvium.
- D6** Ironstone gravelly sandy loam over red clay (Ferric(?) Red Chromosol)
Loamy texture contrast soil with some ironstone gravel and a red alkaline clayey subsoil.
- L1** Shallow stony loam (Paralithic, Leptic Tenosol)
Shallow stony loam, often calcareous throughout or with depth, overlying weathering rock shallower than 50 cm.
- RR** Bare rock.

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

