

BOO Boolcunda Land System

- Area:** 666.7 km²
- Landscape:** Broadly undulating to rolling rises on calcareous basement calc-siltstones and fine-grained sedimentary rocks. Named from Boolcunda Creek, which drains part of the land system. Very shallow soils occur on steeply dissected rises e.g. east of Carrieton, where the drainage pattern is dense. Salinity associated with diapiric intrusions occurs in places. There are some dissected fan, pediment or plateau remnants with surface silcrete gravels overlying the calc-siltstone on the western margin of this unit, especially east of Stephenston.
- Geology:** Tapley Hill Formation (Pft), parts of Tarcowie Siltstone (Pfr), Etina Limestone (Phe), Nackara Dolomite (Pbn) and River Wakefield Group (Pr) dolomites and calcareous sandstones and siltstone
- Topography:** Rises, ranging from steeply dissected to gently undulating; mostly undulating to gently undulating. Gullying and scalding are common along valley floors and on the highly erodible soils which are extensive throughout this land system.
- Elevation:** 300 - 320 m asl in the northern part, rising to 380 - 390 m in the south
- Relief:** Commonly 10 - 20 m but includes rises with as much as 30 m relief
- Annual rainfall:** 250 – 320 mm average
- Typical soils:** Shallow calcareous loams or clay loams over fine grained calcareous rocks are common, especially on upper slopes. Thin, discontinuous calcrete forms in places, mostly on upper slopes and crests.
Shallow grey calcareous loam on fine grained rock. These soils are found on stony rises and low hills. These soils are powdery and pulverulent and exhibit scalding.
Red loam to clay loam over granular clay (pedaric Sodosols/Chromosols) These soils are present on alluvial plains and gently sloping pediments and on concave lower slopes and drainage depressions amongst rises. They typically are extensively scalded.
Grey to calcareous loam grading to calcareous clay (Calcarosols). These soils are found on pediments and plains associated with fine grained calcareous parent rocks.
Red structured friable clays (pedaric Dermosols/Vertosols) occur on plains and pediments, often with surface gravel. Gypsum is present in the subsoils.
- Main soils:**
- A2** (23%) Calcareous loam on rock (Paralithic Calcarosol)
 - L1** (22%) Shallow soil on rock (Rocky Rudosol-Tenosol)
- Minor soils:**
- A5** (9%) Rubbly calcareous loam on clay (Supracalcic-Lithocalcic Calcarosol on clay)
 - B2** (8%) Shallow calcareous loam on calcrete (Petrocalcic Calcarosol-Rudosol)
 - C2** (7%) Gradational loam on rock (Shallow Red Dermosol-Kandosol-Calcarosol)
 - RR** (7%) Bare rock
 - D1** (5%) Loam over clay on rock (Shallow Calcic-Hypercalcic Red Chromosol)
- Summary:** The Boolcunda Land System has an arcuate shape which wraps around the steep hills of the Horseshoe land system. It consists of broadly undulating to rolling rises with shallow calcareous soils over calcareous siltstones and limestones or calcrete. Deeper gradational calcareous soils and red texture contrast soils are found on pediments



and outwash plains. Deep silty alluvial soils occur where floodplains have developed. Many areas exhibit extensive scalding and gully erosion, a result of the erodible nature of the silty soils and weathered fine-grained parent materials occurring in the land system.

Soil Landscape Unit summary: Boolcunda Land System (BOO)

SLU	% of area	Component	Main soils	Prop#	Notes
ABB	0.8	Rolling rises	L1RR	D	Rolling rises with linear rocky quartzite outcrops and shallow rocky soils on interbedded fine-grained rocks. Relief is less than 30m, slopes are 10-30%. Bare rock outcrop is common. Main soils: <u>Shallow stony soils on rock - L1</u> .
ADA	0.3	Undulating rises	C2L1A2	D	Non-arable rocky rises formed on limestones and calc-siltstones such as Skillagoolie Dolomite with very shallow loamy soils. ADA Undulating rises. Relief is less than 30m, slopes are 3-10%. ADB Rolling rises. Relief is 9-30m, slopes are 10-30%. ADC Rolling low hills. Relief is 30-90m, slopes are 3-10%. ADD Steep low hills. Relief is 30-90m, slopes are 30-50%. ADg Undulating rises with eroded watercourses and scalding. Relief is less than 30m, slopes are 3-10%. ADH Rolling rises as above, with eroded watercourses. Relief is 9-30m, slopes are 10-30%. ADh Rolling rises as above with eroded watercourses and scalding. Relief is 9-30m, slopes are 10-30%. ADI Rolling low hills with eroded watercourses. Relief is 30-90m, slopes are 3-10%. ADi Rolling low hills with eroded watercourses and scalding. Relief is 30-90m, slopes are 3-10%. ADJ Steep low hills with eroded watercourses. Relief is 30-90m, slopes are 30-50%. ADj Steep low hills with eroded watercourses and scalding. Relief is 30-90m, slopes are 30-50%. ADM Undulating rises with scalding and sheet erosion. Relief is less than 30m, slopes are 3-10%. ADN Rolling rises with scalding and sheet erosion. Relief is 9-30m, slopes are 10-30%. ADO Rolling low hills with scalding and sheet erosion. Relief is 30-90m, slopes are 3-10%. Main soils: calcareous loamy, <u>Shallow stony soils on rock - L1</u> , <u>Bare Rock - RR</u> , <u>Gradational red clay-loam over clay (Red clayey pedaric Dermosols) - C2</u> and <u>Calcareous clay loam on rock - A2</u> . Non-arable, limited pastoral use.
ADB	0.5	Rolling rises	L1	D	
ADC	0.1	Rolling low hills	L1	D	
ADD	0.9	Steep low hills	L1RR	D	
ADg	2.2	Undulating rises	C2L1A2	D	
ADH	11.9	Rolling rises	L1	D	
ADh	1.7	Rolling rises	L1	D	
ADI	0.4	Rolling low hills	L1	D	
ADi	0.6	Rolling low hills	L1	D	
ADJ	1.5	Steep low hills	L1RR	D	
ADj	0.6	Steep low hills	L1RR	D	
ADM	2.9	Undulating rises	C2L1A2	D	
ADN	0.4	Rolling rises	L1	D	
ADO	0.1	Rolling low hills	L1	D	
APH	0.4	Rolling rises	L1D1	D	Hills and rises formed on coarse-grained rocks, with shallow, often rocky, soils with sandy textures ranging from loamy sand to sandy clay loam. APH Rolling rises with eroded watercourses. Relief is 9-30m, slopes are 10-30%. API Rolling low hills with eroded watercourses. Relief is 30-90m, slopes are 3-10%. APJ Steep low hills with eroded watercourses. Relief is 30-90m, slopes are 30-50%. APK Steep hills with eroded watercourses. Relief is greater than 90m, slopes are 30-60%. Main soils: <u>Shallow stony soils on rock - L1</u> and <u>Clay loam over pedaric red clay on rock - D1</u> . Non-arable, suited to grazing on native pastures.
API	1.9	Rolling low hills	L1D1	D	
APJ	1.2	Steep low hills	L1D1	D	
APK	0.5	Steep hills	L1D1	D	
AYI	0.1	Rolling low hills	A2L1RR	D	Hills and rises on calcareous fine-grained rocks. AYI Rolling low hills with eroded watercourses. Relief is 30-90m,



AYK	0.5	Steep hills	A2L1RR	D	slopes are 10-30%. AYK Steep hills with eroded watercourses. Relief is greater than 90m, slopes are 30-60%. Main soils: <u>Calcareous loam on rock</u> – A2 and <u>Shallow stony soils on rock</u> - L1 . <u>Bare Rock</u> - RR is common.
DNI	0.6	Gently undulating rises	D1	D	Rises with shallow texture contrast soils formed on fine-grained rocks, typically Brachina Shale Formation. The soils have clay loam surface textures.
DNm	0.2	Undulating rises	D2D1	D	DNI Gently undulating rises. Gullyng affects up to 20% of land and scalding occurs on 5-50%. Slopes: 1-3%, relief: less than 30m. DNm Undulating rises. Gullyng affects up to 20% of land and scalding occurs on 5-50%. Relief is 9-30m, slopes are 3-10%. Main soils: <u>Loam over red clay</u> - D2 and <u>Clay loam over pedaric red clay on rock</u> - D1 . Associated soils include <u>Red cracking clay</u> - E2 .
DXI	0.6	Rolling rises	D1L1	V	Landscapes with red duplex soils over basement rock or saprolite within one metre of the surface. More than 20% of soils are formed on outwash sediments and surface textures are loam. DXI Rolling rises and pediment slopes with gullies affecting 10-20% of land. <i>Undulating Rises:</i> Rocky rises with shallow red duplex soils on rock. Relief is 9-30m, slopes are 3-10%. <i>Pediments:</i> Pediment slopes with red duplex and gradational soils. Slopes are 3-10%. Main soils: <u>Clay loam over pedaric red clay on rock</u> - D1 , <u>Shallow stony soils on rock</u> - L1 , <u>Loam over red clay</u> - D2 , <u>Loam over pedaric red clay</u> - D4 , <u>Friable gradational clay loam</u> - C3 .
		Pediments	D2D4C3	C	
EAB	0.1	Gently undulating rises	A2C2D1	D	Rises with gradational calcareous soils over hard rock with more than 20% red texture contrast and/or non-calcareous red gradational soils.
EAC	0.2	Undulating rises	A2C2D1	D	EAB Gently undulating rises. Slopes are 1-3%, relief: <30m. EAC Undulating rises. Relief is 9-30m, slopes are 3-10%. Main soils: <u>Calcareous loam on rock</u> - A2 , <u>Gradational loam on rock</u> - C2 and <u>Clay loam over pedaric red clay on rock</u> - D1 .
EFB	0.03	Gently undulating rises	A2D7L1	D	Rises and plains with moderately shallow soils overlying hard calcareous rocks, typically Hawker Group siltstones and limestones.
EFC	0.2	Undulating rises	A2D7L1	D	EFB Gently undulating rises with only minor scalding. Slopes are 1-3%, relief is less than 30m.
EFM	0.9	Undulating rises	A2D7L1	D	EFC Undulating rises with only minor scalding. Relief is less than 30m, slopes are 3-10%.
EFm	0.5	Undulating rises Gently	A2D7L1	D	EFM Undulating rises with moderate, patchy salinity (dry saline land) and variable patches of scalding, mostly in hollows or drainage lines.
EFV	0.1	Undulating rises	A2D7L1	D	Relief is less than 30m, slopes are 3-10%.
EFW	0.1	Undulating rises	A2D7L1	D	EFm Undulating rises; up to 20% of land affected by gullyng and up to 50% of land scalded. Relief: less than 30m, slopes: 3-10%.
					EFV Gently undulating rises with 5-10% of land scalded. Slopes are 1-3%, relief is less than 30m. EFW Undulating rises variably scalded with between 5 and 50% of land affected. Main soils: <u>Calcareous loam on rock</u> – A2 , <u>Loam over poorly structured clay on rock</u> - D7 , <u>Shallow stony soils on rock</u> - L1 .
EHB	0.1	Gently sloping plain	A2	V	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.
		Rocky outcrops	RR	L	
EHI	1.3	Rolling rises	A2L1	V	EHB Gently sloping plains with rocky outcrops.
		Pediments	A2	C	
Ehk	4.2	Plains	A2D7L1	V	<i>Plains:</i> Slopes are 1-3%, relief is less than 9m.



		Rocky rises	A2L1	C	<p><i>Rocky rises:</i> Slopes are 3-10%, relief is 9-30m.</p> <p>EHI Rolling rises and pediments west of Mookra Pound. 10-20% of land is affected by gulying, scalding affects around 5%.</p> <p><i>Rolling Rises:</i> Scalding and sheet erosion affects 20-50% of land, especially in proximity to severely gullied drainage lines. Relief is 9-30m, slopes are 10-30%.</p> <p><i>Pediments:</i> Gently sloping plains with slightly deeper, silty calcareous soils over calc-siltstones. Relief is less than 9m, slopes are 3-10%.</p> <p>EHk Gently sloping fans and pediments with low, gentle rocky rises in places.</p> <p>Severely scalded (40-50% of land affected) and gullied (20% of land affected).</p> <p>Main soils:</p> <p><i>Rocky rises:</i> Calcareous loam on rock – A2 and Shallow stony soils on rock - L1.</p> <p><i>Fans and pediments:</i> <u>Calcareous loam on rock – A2.</u></p> <p>EHI Gently undulating pediments with rocky rises, severely scalded (40-50% of land affected) and gullied (20% of land affected). Slopes are 1-3%, relief is less than 30m.</p> <p>EHm Undulating low rises on calcareous basement rock with deeper calcareous soils on lower slopes & drainage depressions. Scalding is moderate to severe on lower slopes. Relief is less than 30m, slopes are 3-10%. Severely scalded (40-50% of land affected) and gullied (20% of land affected).</p> <p>Main soils:</p> <p><i>Rises, crests:</i> <u>Calcareous loam on rock – A2.</u></p> <p><i>Lower slopes:</i> <u>Calcareous loam on rock – A2</u> and Shallow stony soils on rock - L1.</p> <p>EHn Dissected rolling rises with shallow calcareous soils on Cambrian Hawker Group limestone & calc-siltstone. Some areas of shallow red clay soils occur on crests (She-oak/Allocasuarina groves are associated with these). Severely scalded (40-50% of land affected) and gullied (20% of land affected).</p> <p>Main soils: <u>Calcareous loam on rock – A2</u> and <u>Shallow (often clayey) stony soils on rock - L1.</u></p> <p>EHU Plains with rocky rises. Scalding affects up to 50% of the land, being more pronounced on the plains, compared to the associated rockier rises.</p> <p><i>Plains:</i> Flat outwash plains with moderately shallow, pulverulent, easily erodible, calcareous soils. More than 50% of the land in this <u>component</u> of the soil-landscape is scalded. Slopes are less than 1%, relief is less than 9m.</p> <p><i>Rocky Rises:</i> Undulating rocky rises, 5-50% of the land in this component is scalded. Relief is less than 9m, slopes are 1-3%.</p> <p>EHV Gently undulating pediments with rocky rises</p> <p><i>Pediments:</i> Gently undulating plains, 50-50% of land is scalded. Slopes are 1-3%, relief is less than 9m.</p> <p><i>Rocky Rises:</i> Undulating rises, 5-50% of land is scalded. Slopes are 3-10%, relief is 9-30m.</p> <p>EHW Undulating rocky rises with pediments. Relief is less than 30m, slopes are 3-10%. 5-50% of land is scalded.</p> <p>Main soils:</p> <p>Rocky rises: <u>Shallow stony soils on rock - L1</u> and Bare rock - RR.</p> <p>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></p>
EHI	5.2	Gently undulating pediments	A2	V	
		Rocky rises	A2L1	C	
EHm	4.7	Undulating rises	A2L1	V	
		Undulating pediments	A2	C	
EHn	1.4	Rolling rises	A2L1	V	
		Pediments	A2	C	
EHU	0.3	Plains	A2D7L1	V	
		Rocky rises	A2L1	C	
EHV	0.2	Gently undulating pediments	A2	V	
		Rocky rises	A2L1	C	
EHW	1.1	Undulating rises	A2L1	V	
		Undulating pediments	A2	C	



ELH	0.3	Undulating rises	L1C2B2	D	Rises with shallow soils formed on Appila Tillite Formation and alluvium. ELH Undulating rises-pediment complex. Gullyng affects 10-20%, scalding affects around 5%. Slopes: 3-10%, relief is 9-30m. Main soils: <u>Shallow stony soils on rock - L1</u> , <u>Gradational red clay-loam over clay</u> (Red clayey pederic Dermosols) - C2 and <u>Shallow calcareous loam on calcrete - B2</u> .
ESH	0.6	Undulating rises	A2A5	V	Hills and rises with shallow loamy surface soils on calcareous shales and limestone rocks of the Wonoka Formation. ESH Undulating rises with rocky outcrops. Up to 20% of land is affected by gullyng. <i>Undulating rises:</i> More than 20% of land within this component is gullied. Slopes are 3-10%, relief is 9-30m. <i>Rocky outcrops:</i> The rocky outcrops have no gullyng. Main soils: <u>Calcareous loam on rock - A2</u> and <u>Rubbly calcareous loam on clay - A5</u> . <u>Bare Rock - RR</u> is common on rocky rises.
		Rocky outcrops	RR	C	
EUm	3.8	Undulating rises	L1C2A2	D	Undulating rises with a complex of red clayey soils and shallow calcareous soils and red texture contrast soils with calcareous subsoils. Gullyng affects around 20% of land and scalding affects around 15%. Main soils: <u>Shallow stony soils on rock - L1</u> , <u>Gradational loam on rock - C2</u> and <u>Calcareous loam on rock - A2</u> .
EVC	0.4	Undulating rises	A2	V	Rises with rock outcrops and shallow calcareous soils formed on fine-grained calcareous rocks. EVC Undulating rises. Slopes are 3-10%, relief is 9-30m. EVm Undulating rises with 5-10% gullyng, 10-50% scalding Slopes are 3-10%, relief is 9-30m. EVn Rolling rises with 5-10% of land is gullied, and up to 50% is scalded and moderate subsoil salinity occurs. Relief is 9-30m, slopes are 10-30%. EVV Gently undulating rises with 10% scalding, gullyng affects around 5% of land. Slopes are 1-3%, relief is less than 30m. Main soils: <u>Calcareous loam on rock - A2</u> and <u>Bare rock - RR</u> .
		Rocky outcrops	RR	C	
EVm	0.5	Undulating rises	A2	V	
		Rocky outcrops	RR	C	
EVn	0.1	Rolling rises	A2	V	
		Rocky outcrops	RR	C	
EVV	0.6	Gently undulating rises	A2	V	
		Rocky outcrops	RR	C	
EZC	0.8	Undulating rises	A2A5B2	V	Rises with mostly shallow calcareous soils on weathered siltstones of the Tapley Hill Formation and the Tarcowie Siltstone. EZC Undulating rises with rocky outcrops. Slopes are 3-10%, relief is less than 30m. EZH Undulating rises with rocky outcrops. Gullyng affects 10-20% of land, scalding affects around 5%. Slopes are 3-10%, relief is less than 30m. EZI Gently undulating rises with rocky outcrops, severely scalded (40-50% of land affected) and gullied (20% of land affected). Slopes are 1-3%, relief is less than 30m. EZm Undulating rises with rocky outcrops. Gullyng affects around 20% of land and scalding affects around 15%. Slopes are 3-10%, relief is less than 30m. EZn Rolling rise-pediment complex. Relief is 9-30m, slopes are 10-30%. EZu Gently undulating rises with rocky outcrops. Slopes are 1-3%, relief is less than 30m. EZv Gently undulating rise-pediment complex. Slopes are 1-3%, relief is less than 30m. EZW Undulating rises with rocky outcrops. Slopes are 3-10%, relief is less than 30m.
		Rocky outcrops	RR	C	
EZH	0.3	Undulating rises	A2A5B2	V	
		Rocky outcrops	RR	C	
EZI	2.2	Gently undulating rises	A2A5B2	V	
		Rocky outcrops	RR	C	
EZm	6.8	Undulating rises	A2A5B2	V	
		Rocky outcrops	RR	C	
EZn	1.0	Rolling rises	A2A5B2	V	
		Pediments	A2A5B2	C	
EZu	4.1	Gently undulating rises	A2A5B2	V	



EZv	1.1	Plains	A2A5B2	C	<p>EZw Undulating rises with rocky outcrops. Slopes are 3-10%, relief is less than 30m.</p> <p>EZx Rolling rise-pediment complex. Relief is 9-30m, slopes are 10-30%.</p> <p>Main soils:</p> <p>Rises: <u>Calcareous loam on rock</u> – A2, <u>Rubbly calcareous loam on clay</u> - A5 and <u>Shallow calcareous loam on calcrete</u> - B2.</p> <p>Rocky outcrops: <u>Bare rock</u> – RR.</p> <p>Pediments: <u>Calcareous loam on rock</u> – A2, <u>Rubbly calcareous loam on clay</u> - A5 and <u>Shallow calcareous loam on calcrete</u> - B2.</p>
		Gently undulating rises	A2A5B2	V	
EZW	0.03	Pediments	A2A5B2	C	
		Undulating rises	A2A5B2	V	
EZw	0.4	Rocky outcrops	RR	C	
		Undulating rises	A2A5B2	V	
EZx	0.4	Rocky outcrops	RR	C	
		Rolling rises	A2A5B2	V	
HIH	0.2	Pediments	A2A5B2	C	
		Dissected plateau	C3D4	D	
HIInn	0.9	Dissected plateau	C3D4	D	<p>Dissected Tertiary plateau land surface remnants underlain by deeply weathered basement rock.</p> <p>Soils are red gradational, texture contrast or clays, with associated calcareous soils. Ironstone, silcrete and quartz gravels are often present as surface lag. The soil landscapes occur north of Hammond on Quorn & Wilmington 1:100,000 sheets. Soil depths vary from very shallow (few cm) to moderate (75cm). Minor scalding is usually present. The underlying hard rock materials are variable types but exhibit deep weathering effects.. There are highly erodible areas.</p> <p>HIH Dissected plateau with 5-10% of land is gullied, less than 5% is scalded.</p> <p>HIInn Dissected plateau with more than 20% of land is gullied and more than 50% is scalded.</p> <p>Main soils: <u>Friable gradational clay loam</u> - C3 and <u>Loam over pedaric red clay</u> - D4, less commonly, <u>Ironstone soil with calcareous lower subsoil</u> - J1.</p>
HOU	0.3	Plains	D4E2A5	D	<p>Thin surfaced texture contrast or red clay soils with strong surface structure with calcareous and/or gypsiferous subsoils. Surface gravels are common. Minor scalding occurs. Some drainage lines are weakly incised. This soil-landscape unit is related to the Coonatto association of Blackburn & Baker (1953). Gypsum is commonly found in the deep subsoil. Calcareous rises form a minor component of this soil landscape.</p> <p>HOU Flat to gently sloping plains with around 40-45% scalded.</p> <p>HOV Gently undulating rises with 10% scalded land.</p> <p>HOm Undulating rises: 10% of land scalded and 10-20% gullied.</p> <p>Main soils: <u>Loam over pedaric red clay</u> - D4, <u>Red cracking clay</u> - E2 and <u>Rubbly calcareous loam on clay</u> - A5.</p>
HOV	0.1	Gently undulating rises	D4E2A5	D	
HOm	0.6	Undulating rises	D4E2A5	D	
		Undulating rises	D4E2A5	D	
JAB	0.1	Gently undulating pediments	D4E2C3	D	<p>Pediments and outwash plains with clay loam surface textures on texture contrast and gradational soils. Red clays are also common. Gently undulating pediments. Slopes are 1-3%, relief is under 9m.</p> <p>Main soils: <u>Loam over pedaric red clay</u> - D4, <u>Red cracking clay</u> - E2 and <u>Friable gradational clay loam</u> - C3.</p>
JCB	0.2	Gently undulating pediments	D4E2C3	D	<p>Gently sloping pediment with sandy clay loam surfaced texture contrast soils. Red clay and gradational soils are also common. Slopes are 1-3%, relief is under 9m.</p> <p>Main soils: <u>Loam over pedaric red clay</u> - D4, <u>Red cracking clay</u> - E2 and <u>Friable gradational clay loam</u> - C3.</p>
JII	0.1	Gently sloping plain	D4D1A5	D	<p>Gently sloping alluvial plain with red texture contrast and calcareous soils. Gullying affects 5-50% of land, most severe along watercourses. Scalding affects nearly 50% of land. Slopes are 1-3%, relief is less than 9m.</p> <p>Main soils: <u>Loam over pedaric red clay</u> - D4, <u>Loam over clay</u></p>



					on rock- D1 and <u>Rubbly calcareous loam on clay</u> - A5 . Subdominant soils include <u>Deep moderately calcareous loam</u> - A3 and <u>Shallow calcareous loam on calcrete</u> - B2 .
JMk	0.1	Plains	D2D4A6	D	Plains with stony texture-contrast soils, which often have pedaric clay subsoils. JMk Level plains, up to 20% is gullied, around 50% is scalded. Slopes are less than 1%. Main soils: <u>Loam over red clay</u> - D2 , <u>Loam over pedaric red clay</u> - D4 and Gradational calcareous clay loam - A6 . Red clay soils are minor components. Soils are fertile, but suffer erosion of thin surface layers, leaving scalds.
JNk	0.3	Plain	D4D2A5	D	Pediments with non-stony pedaric, texture contrast soils with calcareous subsoils. Surface textures are clay loamy most commonly.
JNI	1.1	Gently sloping pediments	D4D2A5	D	JNk Plain; 10-20% affected by gullying and 40-50% scalded. Scalding may be more than 50% locally.
JNo	0.2	Creek flat	D4D2A5	D	JNI Gently sloping plain; 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.
JNV	0.4	Gently sloping pediments	D4D2A5	D	JNo Creek flats with severe (more than 20%) gullying and scalding (more than 50%). JNV Gently sloping pediments. Scalding affects 10-50% of land. Slopes are 1-3%, relief is less than 9m. Main soils: <u>Loam over pedaric red clay</u> - D4 , <u>Loam over red clay</u> - D2 and <u>Rubbly calcareous loam on clay</u> - A5 . Red clay soils occur in minor association.
JXyy	0.04	Valley lower slopes	D2	V	Pediments with texture contrast soils in complex with rocky rises. Most soils have clay loam surfaces. JXyy Valley lower slopes and rocky rise complex. Severely scalded (more than 75%) and severely gullied (more than 50%). Slopes are less than 1%
		Rocky rises	D1	C	
JXII	0.03	Gently pediments	D2	V	JXII Gently undulating pediments and rocky rise complex. More than 20% of land is gullied and 10-50% is scalded. Slopes are 1-3% on flats and 3-10% on rises.
		Rocky rises	D1	C	
JXm	0.1	Undulating pediments	D2	V	JXm Undulating pediments and rocky rise complex. Scalding affects 10-50% and 20% is gullied. Slopes are 3-10%, relief is less than 9m on pediments and 9-30m on rises.
		Rocky rises	D1	C	
JXV	1.4	Gently pediments	D2	V	JXV Gently undulating pediments and rocky rise complex. Scalding affects 10-50% of land, around 10% is gullied. 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	
JZB	0.1	Gently undulating pediments	D4D1D2	V	Pediment-basement rock complex with gently sloping pediments with red texture contrast soils and 20-30% rocky rises with shallow texture contrast soils. JZB Gently undulating pediments and rocky rise complex. Slopes are 1-3% on pediments and 3-10% on rises.
		Rocky rises	D1	C	
JZE	0.1	Creek flat	D4A5	D	JZE Creek flat with rocky outcrops. JZg Gently undulating pediments and rocky rise complex. Around 10% of land is scalded and 10% is gullied. Slopes are 1-3% on pediments and 3-10% on rises.
		Rocky outcrops	RR	C	
JZg	0.7	Gently undulating pediments	D4D1D2	V	JZH Undulating pediments and rocky rise complex. The rises have 20% gullied land and 5% scalding, the pediments show around 5% gullying and no scalding. Slopes are 3-10%, relief is less than 9m on pediments and 9-30m on rises.
		Rocky rises	D1	C	
JZH	0.1	Undulating pediments	D4D1D2	V	JZI Gently undulating pediments and rocky rise complex. The pediments have between 10-50% of gullied land, with 20-
		Rocky rises	D1	C	
JZI	1.7	Gently undulating	D4D1D2	V	



		pediments			75% scalded. Rises are not affected.
		Rocky rises	D1	C	Slopes are 1-3% on pediments and 3-10% on rises.
JZm	0.8	Undulating pediments	D4D1D2	V	JZm Undulating pediments and rocky rise complex. Scalding affects nearly 50% and gullyng affects more than 20% of pediments. Rises have less than 5% scalding and around 15% gullyng. Slopes are 3-10%, relief is less than 9m on pediments and 9-30m on rises.
		Rocky rises	D1	C	
JZyy	1.5	Creek flat	D4A5	D	JZU Level plain with gently undulating rises. Up to 10% of land is scalded.
		Rocky outcrops	RR	C	
JZU	0.2	Plain	D4C4	D	JZpz Level plain with gently undulating rises. The land is more than 50% gullied and more than 50% scalded, moderate dryland salinity also occurs.
		Gently Undulating rises	L1D1A2	M	
JZpz	0.3	Plain	D4C4	D	JZV Gently undulating pediments and rocky rise complex. scalding affects up to 50% and gullyng affects up to 5% of land. Gullyng is more pronounced on rises, up to 20%. Slopes are 1-3% on pediments and 3-10% on rises.
		Gently Undulating Rises	L1D1A2	M	
JZV	0.3	Gently undulating pediments	D4D1D2	V	JZyy Creek flat with rocky outcrops. Scalding affects over 50% and gullyng affects over 70% of the land. Main soils:
		Rocky rises	D1	C	Pediments and plains: <u>Loam over pedaric red clay - D4</u> , <u>Loam over clay on rock - D1</u> and <u>Loam over red clay - D2</u> with minor <u>Rubbly calcareous loam on clay - A5</u> .
					Rocky rises: <u>Loam over clay on rock - D1</u> with 10-30% bare rock or <u>Calcareous loam on rock - A2</u> .
KCA	0.2	Plains	C3A3	D	Plains and pediments of outwash sediments with gradational soils with sandy clay loam surface textures. Soils are mostly not calcareous throughout.
KCB	0.1	Gently undulating pediments	C3A3	D	KCA Flat plains. Slopes less than 1%.
KCH	0.4	Undulating pediments	C3A3	D	KCB Gently undulating pediments. Slopes: 1-3%, relief: <9m.
KCJ	0.04	Creek line	C3A3 M3	D	KCH Undulating pediments, with 10-20% gullied and minor scalding, up to 5%. Slopes are 3-10%, relief is less than 9m
KCI	2.2	Gently undulating pediments	C3A3	D	KCJ Creek line, severely gullied, with more than 50% of land affected. Scalding is minor, less than 5% is scalded.
KCm	1.8	Undulating pediments	C3A3	D	KCI Gently undulating pediments, 10% is gullied and up to 50% is scalded. Slopes are 1-3%, relief is less than 9m.
KCy	0.02	Creek line	C3A3 M3	D	KCm Undulating pediments, 10-20% is gullied and up to 50% is scalded. Slopes are 3-10%, relief is less than 9m
KCV	0.9	Gently undulating pediments	C3A3	D	KCy Creek line with extreme scalding (over 50%) and gullyng (over 50%)
KDI	0.1	Gently sloping pediments	C3A5	D	KCV Gently undulating pediments with 10-50% scalded and 5-10% gullied. Slopes are 1-3%, relief is less than 9m. Main soils: <u>Friable gradational sandy clay loam - C3</u> and <u>Deep moderately calcareous sandy loam - A3</u> . Additionally, <u>Deep gravelly soil - M3</u> is found associated with creek flats.
KFvw	0.1	Gently undulating pediment	A5	D	Gently sloping pediments with mixed red gradational soils with calcareous subsoils and calcareous rubbly soils. Up to 50% is scalded and 5-10% is gullied. Slopes are 1-3%, relief is <9m. Main soils: <u>Friable gradational clay loam - C3</u> and <u>Rubbly calcareous loam on clay - A5</u> .
KGB	0.3	Gently undulating pediments	C3C1	D	Pediments with calcareous gradational soils and more than 20% red pedaric texture contrast soils.
KGJ	0.05	Creek flat	C3C1	D	KFvw Gently undulating pediment with 20-60% of land gullied and 50-75% scalded. Slopes are 1-3%, relief is less than 9m. Main soils: <u>Rubbly calcareous loam on clay - A5</u> with over 20% <u>Loam over pedaric red clay - D4</u> .
KGi	0.2	Gently undulating	C3C1	D	Pediments with sandy surface textured red gradational soils with calcareous subsoils.
					KGB Gently undulating pediments, with minor scalding and gullyng. Slopes are 1-3%, relief is less than 9m.
					KGJ Creek flat with more than 20% gullied.
					KGi Gently undulating pediments with slight scalding (less



		pediments			than 5%) and minor gullyng which is locally more severe along drainage lines. Slopes are 1-3%, relief is less than 9m.
KGV	0.3	Gently undulating pediments	C3C1	D	KGV Gently undulating pediments with 5-10% scalding and minor gullyng. Slopes are 1-3%, relief is less than 9m. Main soils: <u>Friable gradational sandy clay loam</u> - C3 and <u>Gradational sandy loam</u> - C1 .
KJI	0.8	Gently undulating pediments	C4C3A6	D	Pediments with clay loam surface-textured red gradational soils with calcareous subsoils and gradational calcareous soils.
KJm	0.1	Undulating pediments	C4C3A6	D	KJI Gently undulating pediments with up to 50% scalding and 5-10% gullyng. Slopes are 1-3%, relief is less than 9m.
KJV	0.5	Gently undulating pediments	C4C3A6	D	KJm Undulating pediments with up to 50% scalding and 5-10% gullyng. Slopes are 3-10%, relief is less than 9m.
KLg	0.1	Gently undulating pediment	A5	D	KJV Gently undulating pediments with up to 50% scalding and less than 5% gullyng. 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 .
KLvw	0.1	Gently undulating pediment	A5	D	Pediments with predominantly calcareous gradational soils
KNl	0.3	Gently undulating pediments	A5D4	D	KLg Gently undulating pediments with 10-20% gullied and less than 5% scalded. Slopes are 1-3%, relief is less than 9m.
KQl	2.2	Gently undulating pediment	A5	V	KLvw Gently undulating pediments with over 50% scalded land and over 20% gullied. Slopes are 1-3%, relief: less than 9m. Main soils: <u>Rubbly calcareous loam on clay</u> - A5
		Shallow rises	A2	C	KNl Gently undulating pediments with mostly calcareous gradational soils but with more than 20% red texture contrast soils. Up to 50% of land is scalded and up to 10% is gullied. Slopes are 1-3%, relief is less than 9m. Main soils: <u>Rubbly calcareous loam on clay</u> - A5 and <u>Loam over pedaric red clay</u> - D4 .
KQw	0.4	Pediment	A5	V	Pediment and basement-rise complexes with mostly calcareous gradational soils.
		Shallow rises	A2	C	KQl Gently undulating pediments with shallow rises. Up to 50% of land on pediments is scalded and up to 10% is gullied. Rises have few or no scalds and gullies. Slopes 1-3%, relief < 9m.
KQtz	0.1	Drainage line	A5	V	KQw Undulating pediments with shallow rises. Over 50% of land on pediments is scalded and up to 20% is gullied. Rises have few or no scalds and gullies. Slopes are 3-10%, relief is less than 9m on pediments and 9-30m on rises.
		Shallow rises	A2	C	KQtz Drainage lines with shallow rises. Over 50% of land on pediments is scalded and over 20% is gullied. The land is also moderately saline.
KQV	0.2	Pediment	A5	V	KQV Gently undulating pediments with shallow rises. Up to 10% of pediment land is scalded, and around 5% is gullied. Rises generally do not exhibit gullyng and scalding occurs on less than 5%. Slopes are 1-3%, relief is less than 9m.
		Shallow rises	A2	C	KQqz Gently undulating pediments with shallow rises. Over 50% is scalded and gullied, and salinity is high(dry saline land) Slopes are 1-3%, relief is less than 9m. Main soils: <u>Rubbly calcareous loam on clay</u> - A5 on pediments and <u>Calcareous loam on rock</u> - A2 on rises.
KQqz	0.2	Pediment	A5	V	XGS Drainage depressions and watercourses with gravelly loamy alluvial soils.
		Shallow rises	A2	C	XGT Watercourse with eroded, unstable banks. Main soils: <u>Deep gravelly soil</u> - M3 , <u>Deep alluvial loam</u> - M1 .
XGS	0.5	Drainage depression	M3 M1	D	XHS Drainage line with mostly coarse textured soils. Stable banks predominantly. Main soils: <u>Deep alluvial loam</u> - M1 , <u>Gradational sandy loam</u> - C1 and <u>Friable gradational sandy clay loam</u> - C3 .
XGT	0.4	Watercourse	M3M1	D	XJH Floodplain with deep, gravelly, medium-textured (loam)



					alluvial soil. Up to 5% is scalded and gullied. Main soils: <u>Deep gravelly soil -M3</u> and <u>Deep alluvial loam - M1</u> .
XKA	0.6	Watercourse	M1	D	Watercourses with deep silty calcareous clay loamy soils. XKA Watercourse with stable banks and gully walls. XKK Watercourse with eroded and unstable banks. Main soils: <u>Deep alluvial loam - M1</u> .
XKK	0.1	Watercourse	M1	D	
XOB	0.1	Flood plain	M2A6 C3	D	Floodplain with calcareous clayey alluvial soils. Banks are mostly unstable and eroded. Main soils: <u>Deep friable gradational clay loam - M2</u> , <u>Gradational calcareous clay - A6</u> and <u>Friable gradational clay loam - C3</u> .

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

- 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:

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.

C2 Gradational loam on rock (Calcic / Hypercalcic Red Dermosol)

Loam to clay loam grading to a friable red clay with soft Class I carbonate within 50 cm, grading to weathering rock within 100 cm.

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.



- C5** Gradational dark clay loam (Calcic-Hypercalcic Brown-Grey-Black Dermosol-Calcarosol)
Dark clay loams over abundant 'soft lime'. >10% carbonate is the cut off between this and **M2** 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.
- E2** Red cracking clay (Epicalcareous, Epipedal, Red Vertosol)
Dark strongly structured clay grading to a well structured red calcareous medium to heavy clay continuing below 100 cm. Often containing gypsum segregations in subsoil.
- J1** Ironstone soil with calcareous lower subsoil (Ferric Calcic Brown Sodosol-Chromosol-Dermosol)
Ironstone gravelly soil with brown alkaline clayey subsoil which has a calcareous layer within the profile.
- L1** Shallow stony loam (Paralithic, Leptic Tenosol)
Shallow stony loam, often calcareous throughout or with depth, overlying weathering rock shallower than 50 cm.
- M1** Alluvial loam (Orthic Tenosol)
Very thick loam with variable gritty or more-clayey lenses, formed over recent alluvium.
- M2** Deep friable gradational clay loam (Red-Brown-Grey- Black Dermosol)
Deep well structured red clay loamy soil.
- M3** Deep gravelly soil (Gravelly Kandosol-Tenosol)
Deep uniform loamy alluvial soils with at least 50% gravel in the major part of the profile.
- RR** Bare rock.

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

