

WYA Wyacca Land System

Range of hills, north of Quorn, commonly steeply dissected, with strong sheet erosion and gullying on shallow silty calcareous soils. Named from Wyacca Bluff and Wyacca Range.

- Area:** 42.0 km²
- Geology:** Siltstones, fine sandstones limestones and quartzites of the Willochra, Tapley Hill, Uroonda, Brachina, Etina and Brighton Formations. Minor alluvial and colluvial deposits on footslopes, fans and creek flats.
- Topography:** Rolling to steep low hills and hills, strongly dissected, often with fluted or "cathedral" shaped slopes and narrow ridges and valley floors.
- Elevation:** Maximum elevation is 712 m at Wyacca Bluff, falling to 180 m in the north
- Relief:** Maximum relief is around 150 m, grading to 30 m in lower elevation areas
- Annual rainfall:** 225 - 300 mm average
- Main soils:** *Shallow (calcareous) loam to loamy sand on weathering rock are predominant on crests and slopes, in association with outcropping rock*
- L1a** Shallow stony loam on rock
 - L1b** Shallow stony loamy sand on rock
 - A2** Shallow calcareous loam on rock
- Minor soils:** *On rock*
- C2** Gradational loam on rock
 - D7** Loam over poorly structured red clay on rock
- On alluvium or deeply weathered rock*
- A3** Deep moderately calcareous loam
 - A4** Deep (rubbly) calcareous loam
 - C3** Friable gradational clay loam
 - D3** Loam over poorly structured red clay
 - D4** Loam over pedaric red clay
- Summary:** The Wyacca Land System comprises strongly dissected rolling to steep low hills and hills with narrow ridges and valley floors, scree slopes and erosion gullies. Most soils are shallow, stony and loamy, but coarser grained rocks give rise to sandier soils. All are shallow to very shallow and stony, restricting productive potential. The predominant steep rocky slopes preclude cultivated agriculture over about 90% of the area. Deeper and more fertile soils on footslopes, pediments and creek flats are potentially more productive, but the land is commonly scalded and / or gullied and is highly susceptible to further erosion.



Soil Landscape Unit summary: 14 Soil Landscape Units (SLUs) mapped in the Wyacca Land System

SLU	% of area	Component	Main soils	Prop#	Notes
AAE	0.1	Steep Hills	L1	D	Rocky hills and rises formed on siltstones, fine sandstones and minor limestones of the Willochra, Tapley Hill and Brachina Formations. AAE Bare steep rocky hills with slopes of 30-50% and relief of more than 90 m. Main soils: <u>shallow stony loam on rock - L1a</u> with <u>shallow calcareous loam on rock - A2</u> . Non-arable.
AAH	13.2	Rolling Rises	L1	D	AAH Rolling low hills with extensive rock. Slopes are 10-30%, occasionally to 40%, and relief from 30 to 80 m. Watercourses are eroded and incised. Main soils: <u>shallow calcareous loam on rock - A2</u> and <u>shallow stony loam on rock - L1a</u> . Mostly non-arable. AAJ Steep hills with slopes of 20-75%, occasionally to 100%, with relief of up to 150 m. There is extensive rock outcrop and significant watercourse erosion.
AAJ	13.7	Steep hillslopes	L1A2 C2	D	Main soils: <u>shallow stony loam on rock - L1a</u> , <u>shallow calcareous loam on rock - A2</u> and <u>gradational loam on rock - C2</u> . Non-arable.
ADJ	21.8	Steep low hills	L1A2	V	Steep low hills and moderate slopes formed on limestones and dolomites of the Etina and Brighton Formations, and calc-siltstones of the Willochra and Tapley Hill Formations. Slopes are 25-75% with relief to 100 m. Approx. 15% of the landscape has moderate slopes of 10-25%. Gullying affects 10-20% of the land. Main soils: <u>shallow stony loam on rock - L1a</u> and <u>shallow calcareous loam on rock - A2</u> , with <u>gradational loam on rock - C2</u> (more common on gentler slopes). Mostly non arable, but small areas are semi arable, although soils have limited waterholding capacity and erosion potential is significant.
		Moderate slopes	C2L1 A2	L	
APJ	17.7	Steep hills	L1	D	Steep hills formed on coarse-grained basement rocks. Slopes are 30-100%, with relief of up to 200 m. Gullying affects 10-20% of the land. Main soil: <u>shallow stony loamy sand on rock - L1b</u> . Non-arable.
AQC	1.2	Rolling low hills	L1	D	Rocky hills formed on ABC Range Quartzites. AQC Rolling low hills with slopes of 15-30% and relief to 75 m.
AQD	2.2	Steep slopes	L1RR	D	AQD Steep rocky hillslopes of 30-60% with relief to 60 m.
AQE	12.5	Steep hills	L1RR	D	AQE Steep rocky hills with slopes of 30-60% and relief to 125 m.
AQF	1.7	Very steep hills	L1RR	D	AQF Very steep rocky hills with slopes of 50-100%; relief to 150 m. Main soils: <u>shallow stony loamy sand on rock - L1b</u> and rock outcrop - RR , with minor <u>gradational loam on rock - C2</u> . All of this land is non-arable.
AYk	2.7	Steep low hills	A2L1	D	Steep rocky low hills formed on fine grained calcareous rocks of the Etina and Uroonda Formations. Slopes are 20-60% and relief is up to 100 m. Main soils: <u>shallow calcareous loam on rock - A2</u> and <u>shallow stony loam on rock - L1a</u> . Non-arable.
DXo	0.6	Lower slopes and flats	D3D4	V	Lower slopes, fans and creek flats with low rocky rises. Slopes and flats are gullied and scalded. Main soils: loam over pedaric red clay - D4 and loam over poorly structured red clay - D3 with loam over poorly structured red clay on rock - D7 . Rises are dominated by shallow stony loamy sand to loam on rock - L1a,b Soils of the lower slopes and flats are deep and fertile, but commonly poorly structured and erodible. Shallow soils of the rises are non arable.
		Rocky rises	L1	C	



EFw	5.9	Pediment	A2D7	V	Complex of undulating scalded and gullied pediments with slopes of 3-10%, and rocky rises formed on Uroonda Siltstone with slopes of 10-20% and relief to 30 m Main soils: Pediments: <u>shallow calcareous loam on rock - A2</u> and <u>loam over poorly structured red clay on rock - D7</u> . The D7 soils are highly erodible. Rocky rises: <u>Shallow calcareous loam on rock - A2</u> , <u>loam over poorly structured red clay on rock - D7</u> and <u>shallow stony loam on rock - L1a</u> .
EFw EUw	5.9 4.8	Rises Fans and pediments	A2D7 L1 C2	C E	Complex of undulating scalded and gullied pediments with slopes of 3-10%, and rocky rises formed on Uroonda Siltstone with slopes of 10-20% and relief to 30 m Main soils: Pediments: <u>shallow calcareous loam on rock - A2</u> and <u>loam over poorly structured red clay on rock - D7</u> . The D7 soils are highly erodible. Rocky rises: <u>Shallow calcareous loam on rock - A2</u> , <u>loam over poorly structured red clay on rock - D7</u> and <u>shallow stony loam on rock - L1a</u> . Complex of outwash fans and pediments, and undulating rises formed on calc-siltstones of the Etina and Uroonda Formations. Main soils: Fans and pediments: Slopes of 3-10%, 10-20% gullied and more than 50% scalded. <u>gradational loam on rock - C2</u> and <u>loam over pedaric red clay - D4</u> . Arable but highly erodible. Rises: Rocky rises to 40 m high with slopes of 10-20%. <u>Shallow stony loam on rock - L1a</u> and <u>shallow calcareous loam on rock - A2</u> . Semi arable with low waterholding capacity and moderately steep rocky slopes.
EUw KTD	4.8 1.9	Undulating rises Footslopes	L1A2 C3A3	E D	Complex of outwash fans and pediments, and undulating rises formed on calc-siltstones of the Etina and Uroonda Formations. Main soils: Fans and pediments: Slopes of 3-10%, 10-20% gullied and more than 50% scalded. <u>gradational loam on rock - C2</u> and <u>loam over pedaric red clay - D4</u> . Arable but highly erodible. Rises: Rocky rises to 40 m high with slopes of 10-20%. <u>Shallow stony loam on rock - L1a</u> and <u>shallow calcareous loam on rock - A2</u> . Semi arable with low waterholding capacity and moderately steep rocky slopes. Footslopes formed on outwash sediments, with significant surface gravel and stone. Slopes are 10-20%. Main soils: <u>friable gradational clay loam - C3</u> and <u>deep moderately calcareous loam - A3</u> , with <u>deep (rubbly) calcareous loam - A4</u> . Soils are deep and generally inherently fertile, but moderate slopes and upslope run-on mean high erosion potential.

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

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|--|-------------------------------------|
| 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** Shallow calcareous loam (Paralithic, Hypercalcic / Lithocalcic Calcarosol)
Calcareous stony loam grading to soft or rubbly carbonate over weathering dolomite or calc-siltstone within 50 cm.
- A3** Deep moderately calcareous loam (Regolithic, Calcic Calcarosol)
Calcareous loam grading to a loamy to clayey subsoil without a significant carbonate accumulation in the subsoil, grading to medium to fine grained alluvium.
- A4** Deep (rubbly) calcareous loam (Regolithic, Hypercalcic / Lithocalcic Calcarosol)
Calcareous loam grading to a very highly calcareous sandy clay loam to light clay with variable rubble, continuing below 120 cm.
- 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** Friable gradational clay loam (Calcic / Hypercalcic Red Dermosol)
Clay loam grading to a friable red clay with abundant soft Class I carbonate within 50 cm, overlying alluvium within 100 cm.
- D3** Loam over poorly structured red clay (Calcic, Red Sodosol)
Medium thickness hard loam to clay loam with up to 50% quartzite stones over a coarsely prismatic dispersive red clay, calcareous with depth over stony and clayey alluvium.
- D4** Loam over red friable clay (Calcic, Pedaric, Red Sodosol)
Thin to medium thickness loam over a finely structured friable red clay, calcareous from about 50 cm, grading to fine or medium grained alluvium.
- D7** Loam over poorly structured clay on rock (Calcic / Hypercalcic, Red Sodosol)
Medium to thick hard loam sharply overlying a coarsely structured dispersive red clay, calcareous with depth, grading to highly weathered kaolinized siltstone or quartzite.
- L1a** Shallow stony loam on fine grained rock (Paralithic, Leptic Tenosol)
Shallow stony loam, often calcareous with depth, overlying weathering fine grained rock shallower than 50 cm.
- L1b** Shallow stony loamy sand to sandy loam on quartzite (Paralithic, Leptic Tenosol)
Shallow stony loamy sand to sandy loam, often calcareous with depth, overlying quartzite shallower than 50 cm.

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

