

# BKL Buckalowie Land System

- Area:** 46.4 km<sup>2</sup>
- Landscape:** Rocky rolling to steep ranges and rises, often steeply dissected, with very shallow soils on fine grained rocks. Very narrow valley floors are typical. Named from Buckalowie Hill & Buckalowie Creek in the area, east of Belton. The highest point in the range is Eke Hill, 710 m asl, which is just outside the mapping area. Most of the range is around 600 - 650m asl. Relief is around 100 - 110m.
- Geology:** Fine grained rocks of the Wilpena Group of the Adelaide Geosyncline, mainly siltstones and calc-siltstones of the Bunyeroo (Pwb), Ulupa (Pwu) and Brachina (Pwr) Formations
- Annual rainfall:** 275 – 360 mm average
- Soils:** Typical soils are very shallow loams over siltstones and quartzites. These occur throughout on slopes and crests.

## Main soils

- L1a** Shallow stony loam  
**A2** Shallow calcareous loam to clay loam  
**RR** Rock outcrop

## Minor soils

### *On rock*

- C2** Gradational loam to clay loam on rock  
**D1** Loam to clay loam over clay on rock  
**D7** Loam over poorly structured clay on rock  
**L1b** Shallow stony sandy loam  
**L1c** Shallow stony loamy sand

### *On outwash*

- A5** Rubbly calcareous loam on clay  
**A6** Gradational calcareous clay loam  
**C1** Gradational sandy loam  
**C3** Gradational clay loam  
**D2** Clay loam over red clay  
**D4** Clay loam over pedaric red clay  
**E2** Red cracking clay

- Summary:** The Buckalowie Land System consists of north-east to south-west trending ranges north-east of Johnburg. The topography is rolling to steep hills and rises, with shallow soils formed on mostly, fine-grained rocks, often calcareous. Lower slopes and narrow valley floors have gradational or texture contrast soils with red clay subsoils.



**Soil Landscape Unit summary:** 16 Soil Landscape Units (SLUs) mapped in the Buckalowie Land System:

SLU	% of area	Component	Main soils	Prop#	Notes
AAH	1.8	Rolling rises	L1	D	Rolling rises formed on medium grained rock, with much rock outcrop and very shallow rocky sandy loam soils. Relief is less than 30m, slope steepness is between 10 and 30%. Watercourses are eroded and incised. Main soil: <u>shallow stony sandy loam - L1b</u> .
ABC	2.8	Rolling low hills	L1RR	D	Rolling low hills with linear rocky quartzite outcrops and shallow rocky soils on interbedded fine grained rocks. Relief is 30-90m, slopes are 3-10%. Main soils: <u>shallow stony loamy sand - L1c</u> and <u>rock outcrop - RR</u> , with <u>shallow calcareous loam - A2</u> .
ADH	2.1	Rolling rises	L1	D	Non-arable rocky rises formed on limestones and calc-siltstones such as Skillogalee Dolomite with very shallow loamy soils. <b>ADH</b> Rolling rises with eroded watercourses. Relief is 9-30m, slopes are 10-30%. <b>ADL</b> Very steep hills with scalding and sheet erosion. Relief is more than 90m, slopes are more than 60%. Main soils: <u>shallow stony loam - L1a</u> and <u>rock outcrop - RR</u> , with <u>shallow calcareous loam - A2</u> and <u>gradational loam on rock - C2</u> .
ADL	17.3	Very steep hills	L1RR	D	
AFB	1.3	Rolling rises	L1A2	D	Rises and hills with shallow soils on fine grained basement rocks. <b>AFB</b> Rolling rises. Relief is 9-30m, slopes are 10-30%. <b>AFC</b> Rolling low hills. Relief is 30-90m, slopes are 10-30%. <b>AFE</b> Steep hills. Relief is 90-300m, slopes are 30-50%. <b>AFJ</b> Steep low hills with eroded watercourses; more than 20% affected by gulying. Relief is 30-90m, slopes are 10-30%. <b>AFK</b> Steep hills with eroded watercourses; more than 20% affected by gulying. Relief is 90-300m, slopes are 30-50%. Main soils: <u>shallow stony loam - L1a</u> and <u>shallow calcareous loam - A2</u> , with <u>rock outcrop - RR</u> .
AFC	16.8	Rolling low hills	L1A2	D	
AFE	7.1	Steep hills	L1A2	D	
AFJ	5.2	Steep low hills	L1A2	D	
AFK	29.8	Steep hills	L1A2	D	
AIJ	10.2	Steep low hills	L1RRC2	D	Steep low hills formed on fine grained rocks with shallow soils. Watercourses are eroded; more than 20% of land is affected by gulying. Relief is 30-90m, slopes are 10-30%. Main soils: <u>shallow stony loam - L1a</u> , <u>gradational loam on rock - C2</u> and <u>rock outcrop - RR</u> .
DNB	1.0	Gently undulating rises	D1	D	Gently undulating rises formed on fine grained rocks, typically Brachina Shale Formation. Slopes are 1-3%, relief is less than 30m. The soils have clay loamy surface textures. Main soils: <u>clay loam over (pedaric) clay on rock - D1</u> , with <u>clay loam over red clay - D2</u> and <u>red cracking clay - E2</u> .
EFB	0.4	Gently undulating rises	A2D7L1	D	Gently undulating rises formed on calc-siltstones of the Wonoka or Tapley Hill Formations. Slopes are 1-3%, relief is less than 30m. Minor scalding. Main soils: <u>shallow calcareous loam - A2</u> , <u>loam over poorly structured clay on rock - D7</u> and <u>shallow stony loam - L1a</u> .
EUC	0.3	Undulating rises	L1C2A2	D	Undulating rises formed on fine grained rocks. Slopes are 3-10%, relief is less than 30m. Main soils: <u>shallow stony loam - L1a</u> , <u>gradational clay loam on rock - C2</u> and <u>shallow calcareous clay loam - A2</u> .
JFH	1.6	Undulating pediments	D2D4 C1	D	Undulating pediments formed on fine grained outwash. Gulying affects 10-20% of land. Slopes are 3-10%, relief is less than 9m. Main soils: <u>clay loam over red clay - D2</u> , <u>clay loam over pedaric red clay - D4</u> and <u>gradational sandy loam - C1</u> .
JYB	1.3	Gently undulating	D4D1 D7	D	Gently undulating pediments formed on fine grained rocks and sediments. Slopes are 1-3% relief is less than 9 metres.



		pediments			Main soils: <u>clay loam over pedaric red clay - D4</u> , <u>clay loam over clay on rock - D1</u> and <u>loam over poorly structured clay on rock - D7</u> , with <u>rubbly calcareous loam on clay - A5</u> and <u>gradational loam on rock - C2</u> .
KKH	1.0	Undulating pediments	A6A5	D	Undulating pediments formed on fine grained outwash sediments. Slopes are 1-3%, relief is less than 9m. 5-10% of land is affected by gulying. Main soils: <u>gradational calcareous clay loam - A6</u> and <u>rubbly calcareous loam on clay - A5</u> , with <u>gradational clay loam - C3</u> and <u>red cracking clay - E2</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** Shallow calcareous loam to clay loam (Paralithic, Hypercalcic / Lithocalcic Calcarosol)  
Calcareous stony loam to clay loam grading to soft or rubbly carbonate over weathering dolomite or calc-siltstone within 50 cm.
- A5** Rubbly calcareous loam on clay (Regolithic, Supracalcic / Hypercalcic Calcarosol)  
Calcareous loam grading to a very highly calcareous rubbly sandy clay loam to light clay, over a clayey substrate deeper than 60 cm, but within 120 cm.
- A6** Gradational calcareous clay loam (Pedal, Hypercalcic / Supracalcic Calcarosol)  
Calcareous clay loam grading to a well structured very highly calcareous (sometimes rubbly) clay, over a red clayey substrate within 120 cm.
- C1** Gradational sandy loam (Hypercalcic, Red Kandosol)  
Friable sandy to loamy topsoil grading to massive red-brown alkaline loamy to clay loamy subsoil, highly calcareous with depth, over alluvium.
- C2** Gradational loam to clay 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)  
Clay loam grading to a friable red clay with abundant soft Class I carbonate within 50 cm, overlying alluvium within 100 cm.
- D1** Loam to clay loam over clay on rock (Hypercalcic / Calcic, Red Chromosol)  
Medium thickness hard gravelly loam to clay loam over a friable and finely structured red clay, calcareous with depth, grading to weathering basement rock within 100 cm.
- D2** Clay loam over red clay (Calcic / Hypercalcic, Red Chromosol)  
Hard setting clay loam (with variable quartzite stones) abruptly overlying a well structured red clay with soft Class I carbonate at depth.
- D4** Clay loam over red friable clay (Calcic, Pedaric, Red Sodosol)  
Thin to medium thickness clay 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 to loam sharply overlying a coarsely structured dispersive red clay, calcareous with depth, grading to highly weathered kaolinized siltstone or quartzite.
- E2** Red cracking clay (Epicalcareous, Epipedal, Red Vertisol)  
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.
- L1a** Shallow stony loam (Paralithic, Leptic Tenosol)  
Shallow stony loam, often calcareous with depth, overlying weathering fine grained rock shallower than 50 cm.
- L1b** Shallow stony sandy loam (Paralithic, Leptic Tenosol)  
Shallow stony sandy loam, often calcareous with depth, overlying weathering fine to medium grained sandstone or tillite shallower than 50 cm.
- L1c** Shallow stony loamy sand (Paralithic, Leptic Tenosol)  
Shallow stony loamy sand, often calcareous with depth, overlying quartzite shallower than 50 cm.
- RR** Rock outcrop

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

