

RAG Ragless Range Land System

- Area:** 116.7 km²
- Landscape:** Steep rocky elongate quartzite ranges and associated pediments on fine grained rocks and colluvium. Named from Ragless Range, a prominent range in the land system.
- Annual rainfall:** 250 – 375 mm average, but most of the land system receives 300 - 350 mm.
- Geology:** ABC Range Quartzite and Pound Quartzite form the elongate high ridges, and calc-siltstones and limestones occur in the valley floors and on gently undulating landforms. Quaternary outwash deposits occur on pediments and recent valley floor deposits.
- Elevation:** Elevations on ridge crests reach up to 567 m asl, and are commonly 400-550 m asl. Valleys are commonly 250 - 400 m asl.
- Relief:** Relief is up to 200 m along the central and northern ridges and is around 100m or so elsewhere.
- Typical soils:** Very shallow, rocky sandy-loam to loam soils (lithic leptic Rudosols and Tenosols) occur on quartzite on upper slopes of steep hills.
- Main soils:** **L1** (49%) Shallow soil on rock (Rocky Rudosol-Tenosol)
- Minor soils:** **D1** (8%) Loam over clay on rock (Shallow Calcic-Hypercalcic Red Chromosol)
A2 (8%) Calcareous loam on rock (Paralithic Calcarosol)
D4 (6%) Loam over pedaric red clay (Pedaric Red Sodosol-Dermosol)
D2 (6%) Loam over red clay (Calcic-Hypercalcic Red Chromosol-Sodosol)
C3 (4%) Friable gradational clay loam (Calcic-Hypercalcic Red Dermosol-Calcarosol)
RR (4%) Bare rock
- Summary:** Sub-parallel elongate rocky quartzite ranges. Intervening moderately broad, undulating valleys are formed on soft calcareous rocks and have extensive pediments with red texture contrast soils.

Soil Landscape Unit summary: Ragless Range Land System (RAG)

SLU	% of area	Component	Main soils	Prop#	Notes
ADh	1.3	Rolling rises	L1	D	Rolling rises with very shallow stony calcareous soils formed on Skillagollee Dolomite and calcareous fine-grained rock. Watercourses are eroded. Relief is less than 30m, slopes are 10-30%. Scalding and sheet erosion occurs in places. Main soils: <u>Shallow stony soils on rock - L1</u> . 10-15% red clay (<u>Red clayey pedaric Dermosols - C2</u>) and duplex soils (<u>Red clay loamy pedaric Chromosols - D1</u>) occur on fan deposits. Rock outcrop is extensive on steeper ridges.
AKC	3.5	Rolling low hills	L1	D	Rolling low hills with very shallow rocky calcareous soils formed on coarse-grained rocks of the Pre-Cambrian Burra Group including the



					Rhynie Sandstone and Skillagoollee Dolomite. Relief is more than 30m, slopes are 10-30%. Main soils: <u>Shallow stony soils on rock</u> - L1 . Minor soils are <u>Gradational loam on rock</u> - C2 and <u>Loam over clay on rock</u> - D1 .
AQD	2.2	Steep low hills	L1RR	D	Hills and rises with shallow rocky soils formed on quartzite, such as ABC Range Quartzite, with extensive rock outcrop. AQD Steep low hills
AQE	32.7	Steep Hills	L1	D	
AQH	2.6	Rolling rises	L1	D	Relief is less than 90m, slopes are 30-60%. Main soils: <u>Shallow stony soils on rock</u> - L1 . AQE Steep hills as above, with extensive rock outcrop. Relief is greater than 90m, with slope gradients of 30-60%. Main soils: <u>Shallow stony soils on rock</u> - L1 and <u>Bare rock</u> - RR . Non-arable. AQH Rolling rises. Watercourses are eroded. Relief is less than 30m, slopes are 10-30%. Main soils: <u>Shallow stony soils on rock</u> - L1 . Non-arable. Rough grazing only, on native vegetation.
ASK	2.2	Steep hills	L1RR	D	Steep hills with shallow rocky soils and extensive rock outcrop. The rocks are quartzites, soils are non-calcareous. Relief is greater than 90m, slopes are 30-60%. Main soils: <u>Shallow stony soils on rock</u> - L1 . Non-arable. Conservation and scenic value is high.
DNC	1.3	Undulating rises	D2D1	D	Rises with red texture soils formed over fine-grained basement rock. The soils have clay loam surface textures. DNC Undulating rises
DND	1.8	Rolling Rises	D2D4 L1	D	Relief is less than 30m, slopes are less than 10%. Main soils: <u>Loam over red clay</u> - D2 and <u>Loam over clay on rock</u> - D1 . DND Rolling rises. Less than 30m relief, slopes are 10-30%. Main soils: <u>Loam over red clay</u> - D2 , <u>Loam over pedaric red clay</u> - D4 and <u>Shallow stony soils on rock</u> - L1 .
DQI	10.9	Rolling rises	D1A4 B6	D	Rolling rises with pale brown silty, sodic texture contrast soils on rock. 5-10% of land is gullied. Relief is less than 30m, slopes are 10-30%. Main soils: <u>Loam over clay on rock</u> - D1 , <u>Deep (rubby) calcareous loam</u> - A4 and <u>Shallow loam over red-brown clay on calcrete</u> - B6 .
EBB	2.0	Gently undulating rises	L1	D	Rises east of Ragless Range, with shallow, mostly calcareous, soils formed on quartzites and siltstones of the ABC Range Quartzite. EBB Gently undulating rises
EBm	8.5	Undulating rises	L1	D	Slopes are 1-3%, relief is less than 30m. Main soils: <u>Shallow stony soils on rock</u> - L1 . EBm Undulating rises as described above, slopes are steeper (up to 10%) and relief is less than 30m. 5-20% of the land is gullied and 5-50% is scalded. Main soils: <u>Shallow stony soils on rock</u> - L1 .
EFC	0.8	Undulating rises	A2D7 L1	D	Rises with shallow, mainly calcareous loamy soils formed on calc-siltstones of the Wonoka or Tapley Hill Formations typically. EFC Undulating rises.
EFI	1.3	Rolling rises	A2L1	D	Relief is less than 30m, slopes are less than 10%. Main soils: <u>Calcareous loam on rock</u> - A2 , <u>Loam over poorly structured clay on rock</u> - D7 and <u>Shallow stony soils on rock</u> - L1 EFI Rolling rises. Slopes are 10-30%, relief is less than 30m. Gully erosion affects 5-20% of land, reflecting the erodible nature of the silty, calcareous soils. Main soils: <u>Calcareous loam on rock</u> - A2 and <u>Shallow stony soils on rock</u> - L1 .



EHm	0.9	Undulating rises	A2L1	V	Rises and pediments with moderately shallow soils on calc-siltstone and limestone. EHm Gullyng affects up to 20% of land and scalding occurs on 5-50%.
		Undulating pediments	A2	C	
EHn	3.8	Rolling rises	A2L1	V	Rises: Undulating rises. Slopes are 3-10%, relief is 9-30m. Main soils: <u>Calcareous loam on rock</u> – A2 and <u>Shallow stony soils on rock</u> - L1 . Pediments: Undulating pediments. Slopes are 3-10%, relief is less than 9m. Main soils: <u>Calcareous loam on rock</u> – A2 . Rises and pediments with moderately shallow soils on calc-siltstone and limestone. EHn Rises: Rolling rises. Slopes are 10-30%. Relief is 9-30m. Main soils: <u>Calcareous loam on rock</u> – A2 and <u>Shallow stony soils on rock</u> - L1 . Pediments: Slopes are 10-30%. Relief is less than 9m. Main soils: <u>Calcareous loam on rock</u> – A2 .
		Pediments	A2	C	
EVC	2.5	Undulating rises	A2	V	Undulating rises with rock outcrops common and with shallow calcareous soils formed on fine-grained calcareous rocks. Slopes are 3-10%, relief is less than 9-30m. Main soils: <u>Calcareous loam on rock</u> – A2 and <u>Bare rock</u> – RR .
		Rocky outcrops	RR	C	
JAA	0.8	Plains	D4E2 C3	D	Pediments and outwash plains with clay loam surface textures on texture contrast and gradational soils. Red clays are also common. JAA Outwash plains Slopes are less than 1%. Gullyng affects up to 5% of land. Main soils: <u>Loam over pedaric red clay</u> - D4 , <u>Red cracking clay</u> - E2 and <u>Friable gradational clay loam</u> - C3 . D4 and C3 soils have surfaces which are highly susceptible to water erosion.
JAG	1.7	Gently undulating pediments	D4E2 C3	D	JAG Gently undulating pediments. Slopes are 1-3%, gullyng affects 10-20% of the land. Main soils: <u>Loam over pedaric red clay</u> - D4 , <u>Red cracking clay</u> - E2 and <u>Friable gradational clay loam</u> - C3 .
JAH	7.0	Undulating pediments	D4E2 C3	D	JAH Undulating pediments. Slopes are 3-10%. Gullyng affects 5-10% of land. Main soils: <u>Loam over pedaric red clay</u> - D4 , <u>Red cracking clay</u> - E2 and <u>Friable gradational clay loam</u> - C3 . D4 and C3 soils have surfaces which are highly susceptible to water erosion.
JEH	5.2	Undulating pediments	D2C3	D	Undulating pediments with mostly texture contrast soils, with clay loamy surface textures. Slopes are 3-10%, Gullyng affects 10-20% of land Main soils: <u>Loam over red clay</u> - D2 and <u>Friable gradational clay loam</u> - C3 .
JXH	3.8	Undulating pediments	D2	V	Pediments with texture contrast soils in complex with rocky rises. Most soils have clay loam surfaces. JXH Undulating pediments in complex with rocky rises. Slopes are 3-10%, Gullyng affects 10-20% of land. The main soils on the pediments are <u>Loam over red clay</u> - D2 , with <u>Loam over clay on rock</u> - D1 soils associated with rocky rises.
		Rocky rises	D1	C	
JXI	1.0	Rolling pediments	D2	V	JXI Rolling pediments and rocky rises in complex, with soils as above. Slopes are 10-30%, relief is up to 30m. Gullyng is severe and affects more than 20% of land on pediments, but less than 10% on rocky rises. Main soils on pediments: <u>Loam over red clay</u> - D2 ; with <u>Loam over clay on rock</u> - D1 soils associated with rocky rises.
		Rocky rises	D1	C	



JYH	2.3	Undulating pediments	D4D1	D	Undulating pediments with mostly clay loam surfaced texture contrast soils and more than 10% soils which are calcareous throughout. Gullying affects 5-10% of land. Slopes are 3-10%, relief is less than 9 metres. Main soils: <u>Loam over pedaric red clay - D4</u> and <u>Loam over clay on rock - D1</u> . Significant minor soils include <u>Rubbly calcareous loam on clay - A5</u> and <u>Gradational loam on rock - C2</u> .
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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)
Shallow stony loam, calcareous throughout or with depth, overlying weathering rock shallower than 50 cm.
- A4** Deep (rubbly) calcareous sandy loam (Hypercalcic-Lithocalcic Calcarosol)
Calcareous sandy-clay loamy topsoil grading into loamy-clay loamy subsoil with a significant CO₃ buildup in the subsoil. Often rubbly. Soil usually >120 cm in depth.
- B6** Shallow loam over red-brown clay on calcrete (Petrocalcic Red Chromosol-Kandosol)
Shallow texture contrast or gradational soil. Usually hard setting loamy to clay loamy (sometimes sandy) topsoil over a red clayey (sometimes clay loamy) subsoil on calcrete. Surface soil can be slightly calcareous.
- 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.
- D1/D7** Loam over red clay on rock (Hypercalcic / Calcic, Red Chromosol / Sodosol)
Medium thickness hard gravelly loam over a red clay, friable and finely structured (D1), to hard, coarsely structured and dispersive (D7), calcareous with depth, grading to weathering basement rock within 100 cm.
- 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.
- RR** Bare rock.

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

