

FRA Franklyn Land System

Area: 160.9 km²

Landscape: Broad pediments with mostly gentle slopes and broad valley floor between ranges. Soils are both calcareous and non-calcareous red soils. Flood plains are commonly scalded. Pediments are mostly not dissected or eroded.

Annual rainfall: 250 – 335 mm average

Geology: Neoproterozoic Wilpena Group quartzite, siltstone and shale underlie the broad pediment and valley floors in the southern part, with deeper Pleistocene infill occurring in the basinal area to the north. Neoproterozoic Burra Group siltstones also occur, flanking the western margin on upper slopes.

Main soils:

- A3** (27%) Deep moderately calcareous loam (Calcic Calcarosol)
- D4** (22%) Loam over pedaric red clay (Pedaric Red Sodosol-Dermosol)
- M4** (20%) Deep hard gradational sandy loam (Hard Brown-Dark Kandosol- Dermosol)
- C3** (13%) Friable gradational clay loam (Calcic-Hypercalcic Red Dermosol-Calcarosol)

Minor soils:

- A4** (9%) Deep (rubby) calcareous loam (Hypercalcic-Lithocalcic Calcarosol)
- M1** (6%) Deep sandy loam (Brown-Grey-Red Kandosol-Tenosol)

Summary: The Franklyn land system consists of broad valley with gently sloping pediments and valley floor. Proterozoic hard rocks underlie the landscape with deeper infill in the northern part. Soils are mixed deep calcareous and non-calcareous gradational soils as well as pedaric red crumbly texture-contrast soils.

Soil Landscape Unit summary: Franklyn Land System (FRA)

SLU	% of area	Component	Main soils	Prop#	Notes
AJn	0.1	Rise	A2L1	D	Rolling rise with shallow soils formed on fine-grained rocks (Umberatana Group tillites). Less than 20% of soils have secondary carbonate. Soils are shallow over calcareous rocks. Slopes are dissected. Relief is less than 30m, slopes are 10-30%. Main soils: <u>Calcareous loam on rock</u> – A2 and <u>Shallow stony soils on rock</u> - L1 .
JLu	0.5	Flat	D4C3	D	Plains with pedaric, texture-contrast soils with calcareous subsoils. Less than 20% of soils are gradational calcareous soils. Subsoils are moderately saline. JLu Flat, severely scalded (>50%). JLy Drainage depression, severely scalded (>50%). Main soils: <u>Loam over pedaric red clay</u> - D4 and <u>Friable gradational sandy clay loam</u> - C3 .
JLy	0.5	Drainage depression	D4C3	D	
JPV	0.3	Fan	D4C3	D	Pediments and plains with texture contrast soils formed on outwash sediments derived from basement rocks. Calcareous in some part of the profile. More than 20% of soils are pedaric (fine crumbly structure in subsoils). JPV Gently sloping plains, 5-10% scalded.
JPo	14.0	Drainage depression	D4C3	D	



					<p>Slopes are 1-3%, relief is less than 9m. JPo Creek flats. Moderately gullied (10-20%) and scalded (10-50%).</p> <p>Main soils: <u>Loam over pedaric red clay</u> - D4 and <u>Friable gradational sandy clay loam</u> - C3.</p>
KBE	1.4	Fan	C3A3	D	<p>Fan deposits with gradational and uniform textured, calcareous and non-calcareous clay loam surfaced soils. Slopes are 1-3%, relief is less than 9m.</p> <p>Main soils: <u>Friable gradational sandy clay loam</u> - C3 and <u>Deep moderately calcareous loamy sand</u> - A3.</p>
KQJ	3.7	Drainage depression	A4D4 C3	D	<p>Pediment and basement-rise complexes with mostly calcareous gradational soils.</p> <p>KQJJ Valley lower slopes and shallow rises. Over 20% is gullied, 10-50% is gullied and subsoil salinity is moderate (dry saline land).</p> <p>KQU Flats and rises. Moderately scalded (5-10%).</p> <p>Main soils: <u>Deep (rubbly) calcareous sandy loam</u> - A4, <u>Loam over pedaric red clay</u> - D4 and <u>Friable gradational sandy clay loam</u> - C3.</p>
KQU	1.8	Flat	A4D4 C3	D	
KXU	18.7	Plain	M4C3	D	<p>Plains with sandy gradational soils formed in sandy alluvium; typically, gradational sandy loam over red sandy clay. Moderately scalded (5-10%).</p> <p>The main soils are: <u>Gradational loamy sand</u> - M4 and <u>Friable gradational sandy clay loam</u> - C3.</p>
KYA	0.6	Plain	A4M4	D	<p>Plains and fans formed on outwash materials with predominantly deep calcareous gradational soils with sandy loam to sandy clay-loam surfaces.</p> <p>KYA Plain. KYB Gently sloping fan deposit.</p> <p>Main soils: <u>Deep (rubbly) calcareous sandy loam</u> - A4 and <u>Gradational loamy sand</u> - M4.</p>
KYB	10.3	Fan	A4M4	D	
KZB	12.4	Fan	A3M1	V	<p>Fans with gravelly, gradational soils. Carbonate occurs in subsoils, but not generally throughout profiles. Slopes are 1-3%, relief is less than 9m.</p> <p>Main soils: Fans: <u>Deep moderately calcareous loamy sand</u> - A3 and <u>Deep alluvial loam</u> - M1. Rises: <u>Calcareous loam on rock</u> - A2 and <u>Deep (rubbly) calcareous sandy loam</u> - A4.</p>
		Rise	A2A4	L	
KcB	35.6	Fan	A3D4	D	<p>Gently sloping pediments with mostly gradational calcareous soils, but with more than 20% <u>non</u>-calcareous gradational soils (Kandosols). Slopes are 1-3%, relief is less than 9m.</p> <p>Main soils: <u>Deep moderately calcareous loamy sand</u> - A3 and <u>Loam over pedaric red clay</u> - D4.</p>

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/L1** Shallow calcareous loam (Paralithic, Hypercalcic / Lithocalcic Calcarosol) (A2)
Gradational calcareous sandy loam over clay loam on weathered rock.
OR Shallow stony loam (Calcareous, Paralithic, Leptic Tenosol) (L1)
Shallow calcareous sandy loam on rock.
- A3** Deep moderately calcareous (sandy) loam (Calcic Calcarosol)
Calcareous (sandy) loam topsoil grading into loamy-clay loamy subsoil without a significant CO₃ build-up in the subsoil (<20% CO₃ in subsoil). Pediment type Calcarosols.
- A4** Deep (rubbly) calcareous loam (Hypercalcic-Lithocalcic Calcarosol)
Calcareous sandy-clay loamy topsoil grading into loamy-clay loamy subsoil with a significant CO₃ build-up in the subsoil. Often rubbly. Soil usually >120 cm in depth
- C3** Gradational clay loam (Calcic / Hypercalcic Red Dermosol)
Loam to clay loam grading to friable red clay with soft Class I carbonate within 50 cm, grading to alluvium within 100 cm.
- D4** Loam over red friable clay (Calcic, Pedaric, Red Sodosol)
Thin to medium thickness fine sandy loam to loam over finely structured friable red clay, calcareous from about 50 cm, grading to fine or medium grained alluvium.
- 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.
- M4** Gradational loamy sand (Hypocalcic, Red / Brown Kandosol)
Medium to thick massive (often powdery) loamy sand to sandy loam grading to a red or brown sandy clay loam becoming more clayey and weakly calcareous with depth.

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

