

YTN Yatina Land System

Gently sloping outwash fans between the Narien Range and Black Rock Plain south of Orroroo

Total Area: 84.5 km²

Annual rainfall: 300 - 375 mm

Geology: Fine grained outwash sediments derived from the escarpment to the west, commonly containing grit, gravel and stone layers (mainly quartzite).

Topography: Very gently to gently inclined slopes (outwash fans) abutting the eastern flank of the Narien Range and grading to Black Rock Plain to the east. Slopes range from 10% adjacent to the footslopes of the range to 2% where the fan merges imperceptibly with the plain. Watercourses cross the land flowing eastwards. In places they are badly eroded. There are occasional remnant bedrock rises protruding through the sediments near Black Rock. Surface quartzite stone is common throughout.

Elevation: The change in elevation from west to east across the fan is 530 m to 470 m in the south, and 450 m to 410 m in the north.

Relief: The fans slope evenly from west to east so there is little relief other than that provided by the incised watercourses (less than 10 m). The occasional bedrock highs are up to 20 m above the general land surface.

Soils: Most soils are deep over alluvial sediments. They have hard loamy surfaces over red clayey subsoils. Some are calcareous throughout, and all are calcareous in the deep subsoil. Shallow calcareous loams occur on basement rock highs.

Main soils

Soils formed over alluvium on fans

- D2** Hard loam over well structured red clay
- D3** Hard loam over dispersive red clay
- C3** Gradational loam
- A6** Deep calcareous loam

Minor soils

Soils over basement rock on rises

- A2** Shallow calcareous loam

Main features: The Yatina Land System comprises gentle slopes with deep, moderately fertile soils, including hard texture contrast soils, calcareous and non calcareous gradational soils. The main soil limitations are poor structure on the texture contrast soils. However, low rainfall is the main factor affecting crop growth. Low basement rock rises have shallow non arable soils.



Soil Landscape Unit summary: 10 Soil Landscape Units (SLUs) mapped in the Yatina Land System

SLU	% of area	Main features #
EFD	0.4	Low rises up to 20 m high with slopes of 6-15%, formed on basement tillite or siltstone with up to 20% rock outcrop and surface stone. Main soil: <u>shallow calcareous loam</u> - A2 (D). These rises have shallow alkaline soils with frequent rock outcrop which together with the low rainfall preclude cropping. The slopes are sufficiently steep that water erosion is a potential problem if ground cover becomes too sparse.
JEB JEC JEH	53.2 4.9 20.8	Slopes (outwash fans) formed on alluvial sediments. JEB Gentle slopes of 2-3% with well defined water courses 400 m to 1200 m apart. JEC Slopes of 3-10% with well defined water courses 200 m to 600 m apart. JEH Slopes of 3-10%, with commonly eroded watercourses 200 m to 600 m apart. Main soils: <u>hard loam over well structured red clay</u> - D2 (E), with <u>hard loam over dispersive red clay</u> - D3 (E) and <u>gradational loam</u> - C3 (C). The soils on these slopes are deep and relatively fertile. Apart from low rainfall, the main limitations to cropping are caused by poor structure of the D3 soils (and D2 soils to a lesser extent). Hard setting surfaces and dispersive subsoil clays cause poor infiltration, restricted workability, reduced waterholding capacity and patchy emergence. Erosion is a potential problem on the steeper slopes.
JFB	2.8	Outwash fans formed over alluvial sediments, with slopes of 1-2%. Main soils: <u>hard loam over dispersive red clay</u> - D3 (E) and <u>gradational loam</u> - C3 (E). The main limitations to cropping are caused by poor structure of the D3 soils. Hard setting surfaces and dispersive subsoil clays cause poor infiltration, restricted workability, reduced waterholding capacity and patchy emergence
KLK	1.9	Outwash fans formed over alluvial sediments, with slopes of 1-2%. Main soil: <u>deep calcareous loam</u> - A6 (D). This land has generally only minor limitations apart from the low rainfall. The common soils are alkaline with reduced fertility and waterholding capacity. Water erosion is a potential problem, as evidenced by old erosion gullies.
KNB KNG KNH KNJ	4.1 6.8 4.7 0.4	Slopes (outwash fans) formed on alluvial sediments with well defined watercourses which are often eroded. KNB Very gently inclined fan with slopes of 2-3%. KNG Very gently inclined fan with slopes of 2-3% and well defined water courses 600 m to 800 m apart. KNH Gently inclined fan with slopes of 3-8% with partially eroded water courses 200 m to 600 m apart. KNJ Drainage depression with eroded water course. Main soils: <u>deep calcareous loam</u> - A6 (V), with <u>gradational loam</u> - C3 (C). This land has generally only minor limitations apart from the low rainfall. The common soils are alkaline with reduced fertility and waterholding capacity. Water erosion is a potential problem, as evidenced by old erosion gullies.

PROPORTION codes assigned to soils within Soil Landscape Units (SLU):

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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 / Petrocalcic, Hypercalcic / Lithocalcic Calcarosol)
Calcareous stony light sandy clay loam to loam, becoming more calcareous with depth and grading to weathering rock or calcrete capped rock within 50 cm.
- A6** Deep calcareous loam (Regolithic / Pedal, Hypercalcic / Supracalcic Calcarosol)
Calcareous loam to clay loam with up to 50% quartzite or tillite stones, grading to a very highly calcareous clay loam to clay with abundant soft to rubbly carbonate over alluvium.
- C3** Gradational loam (Calcic / Hypercalcic, Red Dermosol)
Medium thickness loam to clay loam, with up to 50% quartzite stones, grading to a red well structured clay, with soft Class I carbonate at depth over alluvium.
- D2** Hard loam over well structured red clay (Calcic / Hypercalcic, Red Chromosol)
Medium thickness hard setting sandy loam to clay loam, with up to 50% quartzite stones, abruptly overlying a red well structured clay with soft Class I carbonate at depth over alluvium.
- D3** Hard loam over dispersive red clay (Calcic, Red Sodosol)
Medium thickness hard setting sandy loam to clay loam, with up to 50% quartzite stones, sharply overlying a red coarsely structured dispersive clay with soft Class I carbonate at depth over alluvium.

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

