

YTR Yates Range Land System

Smooth rolling to steep hills between Mt. Remarkable and Alligator Gorge, west of Melrose

Area: 85.9 km²

Annual rainfall: 450 - 575 mm

Geology: Most of the land system is underlain at shallow depth by basement rocks, mainly siltstones and limited sandstones of the Willochra, Tapley Hill and Brachina Formations, with minor strata of Brighton Limestone equivalent. There are small areas of locally derived alluvium as valley fill.

Topography: Rolling to steep low hills and hills extending from the area between Mt. Remarkable and Alligator Gorge (the two sections of the Mt. Remarkable Land System) south to the Port Germein Gorge. The land system includes the headwaters catchments of the north flowing Spring Creek, the east flowing Mt. Remarkable Creek and the westward flowing Glencoe and Stony Creeks. Slopes range from 20% to 80% and are mostly in the range 30-60%. Rock outcrop is sporadic but there is significant surface stone. Watercourses are very well defined and invariably occupy narrow, steep sided valleys.

Elevation: 300 m in the south west to 780 m at the top of the watershed

Relief: Relief varies from 50 m in the more subdued topography of the south to 200 m in the more strongly dissected areas of the central and northern parts.

Soils: Most soils are moderately deep to shallow over basement rock. They have loam to sandy loam surfaces. Some have red or brown clayey subsoils, others are formed directly over rock, although subsoil carbonate accumulations may occur. Most soils are carbonate free.

Main soils

Soils formed over basement rock

- K2** Loam over well structured red clay
- L1c** Shallow stony sandy loam
- L1a** Shallow stony loam
- K4** Sandy loam over well structured brown clay

Minor soils

Shallow soils formed over basement rock

- K3** Hard sandy loam over dispersive red clay
- L1b** Shallow stony loam over calcareous rock

Deep soils formed over alluvium or slope wash

- F2** Hard sandy clay loam over dispersive brown clay
- M2** Deep gradational loam

Main features: The Yates Range Land System is moderately steep to steep hill country with very limited opportunities for cropping due to the slopes and associated erosion potential. However, soils are commonly moderately deep and fertile, and rainfall is high, so pasture production potential is high.



Soil Landscape Unit summary: 7 Soil Landscape Units (SLUs) mapped in the Yates Range Land System

SLU	% of area	Main features #
AGC AGE	33.0 18.1	Hills formed on fine grained rocks with sporadic outcrop and up to 20% surface stone. AGC Low irregular hills with slopes of 15-40% and relief to 60 m. There is less than 5% rock outcrop. AGE Steep hills with slopes of 30-50% and relief usually of more than 100 m. There is 5-10% rock outcrop Main soils: <u>loam over well structured red clay</u> - K2 (E), <u>shallow stony loam</u> - L1a (C) and <u>sandy loam over well structured brown clay</u> - K4 (L) on hillslopes, with <u>hard sandy loam over dispersive brown clay</u> - F2 (L) and <u>deep gradational loam</u> - M2 (M) on lower slopes. The hills are too steep for cropping, and there are significant areas of inaccessible slopes and shallow rocky soils. However, relative to other hilly country this unit has a high proportion of moderately deep and fertile soils which are potentially productive for grazing. Erosion is always a risk on these slopes if overgrazed, and steep slopes are prone to landslip.
AHC AHD AHJ	9.2 8.8 9.4	Non arable hills formed on fine grained rocks with quartzite reefs at spacings of 50-100 m and 10-20% surface stone. AHC Moderate slopes of 15-30% with relief of 40-90 m. AHD Steep slopes of 30-50% with relief of 50-100 m. AHJ Steep slopes of 30-50% with relief of 50-100 m and eroded water courses. Main soils: <u>shallow stony sandy loam</u> - L1c (E) and <u>hard sandy loam over dispersive red clay</u> - K3 (C) with soils as for AGC/AGE (E). The slopes are non arable and are characterized by quartzite reefs which limit accessibility and reduce potential pasture productivity. Shallow soil depth and rockiness are the main limitations to productivity, while the potential for erosion and landslip (on the steepest slopes) is high.
AJF	17.1	Steep to very steep slopes of 20-100% and relief of 70-200 m formed on fine grained rocks with strata of calcareous rocks. There is up to 50% rocky outcrop on steepest slopes, but less than 5% on other slopes. There is 10-20% surface quartzite and siltstone. Main soils: as for AGC/AGE (V), with <u>shallow stony loam over calcareous rock</u> - L1b (L). The hills are too steep for cropping, and there are significant areas of inaccessible slopes and shallow rocky soils. However, relative to other hilly country this unit has a high proportion of moderately deep and fertile soils which are potentially productive for grazing. Erosion is always a risk on these slopes if overgrazed, and steep slopes are prone to landslip.
BAD	4.4	Moderate slopes of 10-25% and relief to 50 m formed on fine grained rocks. There is 5-10% rock outcrop and 10-20% surface quartzite and siltstone. Main soils: <u>loam over well structured red clay</u> - K2 (E), <u>shallow stony loam</u> - L1a (C), <u>sandy loam over well structured brown clay</u> - K4 (L) and <u>shallow stony loam over calcareous rock</u> - L1b (M) on hillslopes, with <u>hard sandy loam over dispersive brown clay</u> - F2 (L) and <u>deep gradational loam</u> - M2 (M) on lower slopes. The slopes are partly arable but generally they are too steep and the erosion potential is too great. Except on very rocky areas, pasture production potential is good with only minor limitations due to water holding capacity and sub-optimal soil structure. Lower slopes are prone to severe erosion due to large volumes of run-on water and extensive dispersive soils.

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:

- F2** Hard sandy clay loam over dispersive brown clay (Bleached-Mottled, Eutrophic, Brown Sodosol)
Thick hard setting sandy loam to clay loam with a bleached A2 layer, sharply overlying a coarsely structured mottled brown clay continuing below 100 cm.
- K2** Loam over well structured red clay (Eutrophic, Red Chromosol)
Medium thickness stony loam to clay loam abruptly overlying a well structured red clay grading to weathering siltstone within 100 cm.
- K3** Hard sandy loam over dispersive red clay (Eutrophic, Red Sodosol)
Medium thickness hard quartzite gravelly sandy loam sharply overlying a red coarsely structured dispersive sandy clay to clay grading to hard quartzite.
- K4** Sandy loam over well structured brown clay (Eutrophic, Brown Chromosol)
Medium thickness stony sandy loam to sandy clay loam overlying a well structured brown clay grading to weathering sandstone within 100 cm.
- L1a** Shallow stony loam (Basic, Paralithic, Leptic Tenosol)
Stony sandy loam to loam with a paler subsurface layer, grading to weathering rock within 50 cm.
- L1b** Shallow stony loam over calcareous rock (Calcareous, Paralithic, Red-Orthic Tenosol)
Loam to clay loam overlying massive soft to semi-hard carbonate grading to weathering siltstone within 100 cm.
- L1c** Shallow stony sandy loam (Basic, Lithic, Leptic Rudosol)
Stony sandy loam to sandy clay loam overlying hard rock within 50 cm.
- M2** Deep gradational loam (Eutrophic, Red Dermosol)
Thick clay loam becoming more clayey with depth and grading to a well structured red clay overlying deeply weathered rock or colluvial wash.

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

