

# BHR Bald Hill Range Land System

Abrupt range immediately west of Mount Bryan

**Area:** 35.5 km<sup>2</sup>

**Annual rainfall:** 440 – 540 mm average

**Geology:** Appila Tillite interbedded with Grampus and Leasingham Quartzite. Variable thickness deposits of local wash sediments occur on lower slopes and outwash fans. Both rocks and sediments are mantled by a veneer of aeolian carbonates, usually as soft segregations at between 50 and 100 cm.

**Topography:** The Land System is a short (about 12 km long) abrupt range immediately west of Mt. Bryan. There is a narrow outwash fan adjacent to the flats of the Mt. Bryan Valley, which grades very sharply to the steep eastern slopes of the range where gradients are 20 - 50%. West of the spine of the range, slopes are not as steep (10 - 30%), but the land is eroded.

**Elevation:** 520 m adjacent to the flats in the south east to 750 m (Hallett Hill)

**Relief:** Overall relief from top of outwash fan to the crest of the range is 150 m. Maximum local relief is 60 m.

**Soils:** Most soils are shallow to moderately deep loams, commonly with red clayey subsoils, over weathering rock. Less common are deeper loam over clay soils, on lower slopes and outwash fans.

#### Main soils

*Shallow to moderately deep soils on basement rock hills*

- L1** Shallow stony loam
- A2** Calcareous loam on rock
- C2** Gradational loam on rock
- D1** Hard sandy loam over red clay on rock

#### Minor soils

*Deep soils formed over alluvium on fans*

- D2** Hard sandy loam over well structured red clay
- D3** Hard sandy loam over dispersive red clay
- C4** Gradational red loam

**Main features:** The Bald Hill Range Land System is a moderately steep to steep rocky range with mainly shallow stony soils. It stands about 100 m above the valley to the west, and 150 m above the valley to the east, so exposure on the mid to upper slopes is high. Slightly less than half of the land is arable. This includes a narrow strip of gently sloping outwash fan, and some moderately inclined rocky rises. The rest is too steep and / or rocky and / or exposed, and is suited to grazing only. Maintaining cover to control erosion is a major management issue. Erosion is also a problem on the gentler slopes, mainly because of the potentially large volume of run off water from the main range. Poor surface soil structure and rocky reefs are the other principal limitations.



**Soil Landscape Unit summary:** 8 Soil Landscape Units (SLUs) mapped in Bald Hill Range Land System:

SLU	% of area	Main features #
AAC AAI	8.2 28.1	Moderately steep to steep rocky ridges. <b>AAC</b> Ridges 20 m high with slopes of 10-30%. <b>AAI</b> Eroded rocky low hills with slopes of 10-30% and relief to 60 m. Main soils: <u>shallow stony loam - L1</u> (E) and <u>calcareous loam on rock - A2</u> (E), with <u>hard sandy loam over red clay on rock - D1</u> (C). This land is steep, rocky and very highly exposed. Pasture productivity is limited mainly by shallow soils and the difficulty in undertaking improvements (sowing, fertilizing etc). There is considerable potential for erosion - water courses are highly susceptible.
ABC ABD	8.7 6.4	Rocky ridges with quartzite spines, interbedded with softer rocks. <b>ABC</b> Moderate linear ridges to 40 m high with slopes of 10-30%. <b>ABD</b> Steep linear ridges 50-80 m high with slopes of 25-50%. Main soils: <u>shallow stony loam - L1</u> (E) with <u>calcareous loam on rock - A2</u> (C), <u>hard sandy loam over red clay on rock - D1</u> (L) and <u>gradational loam on rock - C2</u> (L). The hills are non arable due to the roughness of the terrain, moderate slopes, shallow stony soils and high exposure. Rocky outcrops limit accessibility in places. Runoff is rapid and exposure is high, so a significant proportion of rainfall does not infiltrate the soil. Watercourses are particularly susceptible to erosion. However, areas of deeper soils are potentially productive for grazing.
ESD ESI	12.9 14.1	Rocky hillslopes, ridges and crests. <b>ESD</b> Slopes of 10-20%, with relief to 50 m and 10-20% rocky reefs. <b>ESI</b> Slopes of 10-20%, with relief to 40 m, 10-20% rocky outcrop and eroded water courses. Main soils: shallow <u>gradational loam on rock - C2</u> (E) and <u>calcareous loam on rock - A2</u> (E) on softer rocks and <u>shallow stony loam - L1</u> (L) on rockier ground. Rocky reefs, shallow stony soils and sometimes moderate slopes limit cropping of these areas. The arable land is confined to strips between the reefs of rock. Water erosion is a potential problem because of the high runoff from the shallow soils and rocky areas.
JEC JEH	18.8 2.8	Fans formed on alluvial sediments. <b>JEC</b> Fans with slopes of 3-10%. <b>JEH</b> Fans with slopes of 4-12% and eroded watercourses. Main soils: <u>hard sandy loam over well structured red clay - D2</u> (E) and <u>hard sandy loam over dispersive red clay - D3</u> (E) with <u>gradational red loam - C4</u> (C) all formed over alluvium. The soils are deep, inherently fertile and generally moderately well drained. The main limitations are poor surface (and subsurface in places) structure. Poor surface structure causes reduced water infiltration resulting in increased erosion potential and downslope surface waterlogging, working difficulty and seedling emergence problems. Dispersive subsoils in the D3 soils cause more prolonged waterlogging.

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

- (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** Calcareous loam on rock (Paralithic, Hypercalcic / Lithocalcic Calcarosol)  
Calcareous loam grading to a very highly calcareous clay loam or rubble layer merging with calcareous weathering rock within 100 cm, usually 50 cm.
- C2** Gradational loam on rock (Calcic, Red Dermosol)  
Loam to clay loam grading to a well structured clay with soft to rubbly carbonate at depth, overlying weathering rock within 100 cm.
- C4** Gradational red loam (Calcic, Red Dermosol)  
Loam to clay loam grading to a coarsely structured clay with soft to rubbly carbonate at depth continuing below 100 cm.
- D1** Hard sandy loam over red clay on rock (Calcic, Red Chromosol)  
Medium thickness hard setting sandy loam to loam abruptly overlying a well structured red clay with fine carbonate accumulations, grading to weathering rock within 100 cm.
- D2** Hard sandy loam over well structured red clay (Calcic, Red Chromosol)  
Medium thickness hard setting sandy loam to sandy clay loam abruptly overlying a well structured red clay with fine carbonate accumulations at depth continuing below 100 cm.
- D3** Hard sandy loam over dispersive red clay (Calcic, Red Sodosol)  
Medium thickness hard setting sandy loam to sandy clay loam abruptly overlying a poorly structured dispersive red clay with fine carbonate accumulations at depth, continuing below 100 cm.
- L1** Shallow stony loam (Paralithic, Leptic Tenosol / Rudosol)  
Shallow stony loam, sometimes calcareous with depth, overlying basement rock within 50 cm.

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

