

# GOM Gomersal Land System

Undulating low hills in the Gomersal area

**Area:** 21.4 km<sup>2</sup>

**Annual rainfall:** 495 – 565 mm average

**Geology:** The land is underlain by fine grained rocks (siltstones and slates) of the Saddleworth and Woolshed Flat Formations. These are commonly deeply weathered to heavy clay deposits which are the parent materials for many of the soils. The rocks and sediments are mantled by fine carbonates which have hardened in places to calcrete pans at shallow depth. Fine grained sediments from localized slope wash occur in drainage depressions.

**Topography:** The Land System consists of undulating rises and low hills with slopes of 3 - 12%. Watercourses are well defined and commonly eroded. The North Para River which cuts across the southern end of the System occupies a steep sided channel.

**Elevation:** 150 m where the North Para River flows out, to 270 m in the north

**Relief:** Up to 60 m but usually 20 - 40 m

**Soils:** The dominant soils are red texture contrast profiles formed on weathering rock. Surface textures are sandy loam to loam, depending on grain size of parent rock. Associated with these soils in a mosaic pattern on slopes are deep medium to fine textured soils, often seasonally cracking.

#### Main soils

- D1** Loam to sandy loam over red clay - Extensive on slopes
- D7** Sandy loam over red clay - Common on slopes
- M2** Deep gradational clay - Common throughout
- E2** Cracking clay - Common throughout
- C2/B4** Shallow gradational loam - Limited on slopes

#### Minor soils

- A6** Calcareous loam - Limited on slopes
- D2** Hard loam over well structured red clay - Common on lower slopes
- D3** Hard loam over dispersive red clay - Common on lower slopes
- L1** Shallow stony loam - Common on steeper slopes

**Main features:** The Gomersal Land System is mostly arable and characterised by fertile, moderately deep to deep and generally well structured soils. Productivity potential is high. Main limitations are water erosion potential, poor structure on some texture contrast soils and wetness on heavier soils.



**Soil Landscape Unit summary:** 5 Soil Landscape Units (SLUs) mapped in the Gomersal Land System:

SLU	% of area	Main features #
AAB	0.4	Low stony slopes and rises formed on siltstone, with 20% or more rock outcrop. Main soil: <u>Shallow stony loam</u> - <b>L1</b> (D) These isolated rises are too rocky for cropping.
AZm	2.1	Steep sided gully of the North Para River, incised into basement rocks. Slopes are variable up to 50% and there is significant rock outcrop. The unit includes the bed of the river. Main soil: <u>Shallow stony loam</u> - <b>L1</b> (D) This land is has little potential other than grazing, but careful management is needed to avoid erosion of the slopes and pollution of the watercourse.
DFC	85.9	Undulating rises and low hills formed on calcified siltstones and slates. Slopes are mostly 4% to 12%. Relief is up to 60 m. Watercourses are well defined and often gullied. There is minor surface stone and no rock outcrop. Main soils: <u>Loam over red clay</u> - <b>D1</b> (C) } <u>Sandy loam over red clay</u> - <b>D7</b> (L) } <u>Deep gradational clay loam</u> - <b>M2</b> (L) } rises <u>Cracking clay</u> - <b>E2</b> (L) } <u>Shallow gradational loam</u> - <b>C2/B4</b> (L) } <u>Hard loam over red clay</u> - <b>D2</b> (L) lower slopes <u>Calcareous loam</u> - <b>A6</b> (M) <u>Shallow stony loam</u> - <b>L1</b> (M) These slopes have moderately deep to deep and fertile soils, mostly with well structured subsoils. Productive potential is high. However, there is moderate potential for water erosion of the poorly structured sandy loam surface soils on slopes and the crumbly clayey soils in watercourses.
JAJ	4.3	Drainage depressions with eroded watercourses. Main soils: <u>Hard loam over dispersive red clay</u> - <b>D3</b> (E) <u>Hard loam over red clay</u> - <b>D2</b> (C) <u>Cracking clay</u> - <b>E2</b> (C) The soils are deep and fertile but commonly poorly structured (D3 soils) and prone to waterlogging and erosion.
TBB	7.3	Gentle slopes of 2-4% formed on clayey sediments. Main soils: <u>Cracking clay</u> - <b>E2</b> (E) <u>Deep gradational clay loam</u> - <b>M2</b> (C) <u>Calcareous loam</u> - <b>A6</b> (L) <u>Hard loam over dispersive red clay</u> - <b>D3</b> (L) These soils are predominantly deep, fertile and well structured. The clayey soils are difficult to manage when wet, but are inherently highly productive. High subsoil boron levels are likely in these soils, so tolerant varieties are needed where symptoms occur.

# 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:**Main soils:

- D1** Loam over red clay (Calcic, Red Chromosol)  
Medium thickness loam with a paler and stony A2 layer abruptly overlying a red well structured clay, highly calcareous from about 50 cm grading to weathering siltstone or slate within 100 cm. Extensive on slopes.
- D7** Sandy loam over red clay (Calcic, Red Sodosol)  
Medium thickness hard setting sandy loam to sandy clay loam with a very stony and paler A2 layer, abruptly overlying a coarsely structured red sandy clay to clay, highly calcareous from about 50 cm and grading to weathering sandstone within 100 cm. Common on slopes.
- M2** Deep gradational clay loam (Calcic, Red / Black Dermosol)  
Medium thickness dark clay loam grading to a well structured red or black clay, calcareous with depth, continuing below 100 cm. Common throughout.
- E2** Cracking clay (Red / Black Vertosol)  
Brown to black self-mulching, seasonally cracking calcareous light clay, grading to dark brown, reddish brown or black strongly structured heavy clay, calcareous with depth. Coarsely structured, brown heavy clay with soft calcareous segregations continues below 200 cm. Common throughout.
- C2/B4** Shallow gradational loam (Petrocalcic, Red Dermosol)  
Medium thickness loam to clay loam grading to a red well structured clay loam over a massive weakly to strongly cemented calcrete pan. Highly calcareous weathering siltstone occurs below 50 cm.

Minor soils:

- A6** Calcareous loam (Calcic Calcarosol)  
Calcareous loam to clay loam, grading to a well structured brown clay becoming more clayey and calcareous with depth. Coarsely structured, brown heavy clay continues below 200 cm.
- D2** Hard loam over well structured red clay (Calcic, Red Chromosol)  
Medium to thick hard loam over a well structured red clay, calcareous from about 60 cm, grading to alluvium or deeply weathered rock - Common on lower slopes.
- D3** Hard loam over dispersive red clay (Calcic, Red Sodosol)  
Thick hard setting loam with a paler coloured A2 layer abruptly overlying a red coarsely structured dispersive clay, highly calcareous from about 60 cm, grading to medium to fine grained alluvium below 100 cm. Common on lower slopes.
- L1** Shallow stony loam (Basic / Calcareous, Paralithic, Leptic Tenosol)  
Thick stony loam grading to weathering siltstone or fine sandstone (with or without secondary carbonate) within 50 cm. Common on steeper slopes.

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

