

# WEP Wepowie Land System

Slopes and low rises on the western side of the Pekina Range, between Booleroo Centre and Pekina

**Area:** 88.0 km<sup>2</sup>

**Annual rainfall:** 375 - 425 mm average

**Geology:** Siltstones, dolomites and minor quartzites of the Saddleworth, Auburn and Cradock Formations, and associated fine grained outwash sediments. All materials are capped by carbonate in soft, rubbly or sheet forms.

**Topography:** Gentle slopes abutting the western flank of the Pekina Range. The slopes are formed on alluvium washed from the range, and are underlain at shallow depth by soft basement rocks which protrude as undulating rises above the surface over roughly half of the area. Slopes are generally less than 10%.

**Elevation:** 420 m in the south eastern extremity to 600 m adjacent to the range in the north.

**Relief:** Generally less than 40 m from the crests of the basement rock rises to the watercourses between the rises.

**Soils:** Almost half the soils are moderately deep to shallow over basement rock. These include calcareous and non calcareous uniform to gradational loams, and texture contrast soils with red clay subsoils. On lower slopes, soils are deeper. Most have loamy surfaces over red clayey subsoils, but deep calcareous loams are significant.

**Main soils:** *Soils formed over alluvium on outwash fans*

**C3** Deep gradational loam

**D2** Hard loam over red clay

*Soils formed over basement rocks on rises*

**A2** Shallow calcareous loam

**D1** Hard loam over red clay on rock

**C2/B4** Shallow gradational loam

**Minor soils:** *Soils formed over alluvium on outwash fans*

**A5** Deep calcareous loam

**D3** Hard loam over dispersive red clay

*Soils formed over basement rocks on rises*

**L1** Shallow stony loam

**Main features:** The Wepowie Land System comprises mainly undulating slopes with a mixture of loamy surfaced soils. These include calcareous, gradational and texture contrast types. Fertility is moderate and soil structure is generally satisfactory, although most of the texture contrast soils tend to set hard. Soil depth is usually adequate, but there are shallow soils over rock on upper slopes which are prone to moisture deficit early in spring time. Erosion is a potential problem throughout, particularly as adjacent steeper slopes can generate substantial runoff. Minor steep rocky slopes are suitable only for grazing.



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

SLU	% of area	Main features #
AAB	0.8	Rocky rises with slopes of 15-30% and relief to 40 m formed on mainly fine grained basement rock. There is up to 20% rocky outcrop and 20-50% surface quartzite and siltstone. Main soils: <u>shallow calcareous loam</u> - <b>A2</b> (E), <u>hard loam over red clay on rock</u> - <b>D1</b> (E) and <u>shallow stony loam</u> - <b>L1</b> (E). The hills are too steep and rocky for cropping and are characterized by shallow stony soils of marginal fertility. Risk of water erosion is high when over-grazing bares off the surface.
EGB EGC EGW	20.1 20.2 0.8	Rises formed on fine grained basement rock with linear reefs of outcropping rock. <b>EGB</b> Rises with slopes of 1-4%, up to 5% rock outcrop and up to 20% surface siltstone, quartzite and calcrete fragments. <b>EGC</b> Rises with slopes of 4-12%, up to 10% rocky outcrop and 20% or more surface siltstone, calcrete and quartzite. <b>EGW</b> Rises with slopes of 4-10%, 5-10% of land affected by scalding and up to 10% surface siltstone, calcrete and quartzite. Main soils: <u>shallow calcareous loam</u> - <b>A2</b> (E), <u>hard loam over red clay on rock</u> - <b>D1</b> (C) and <u>shallow gradational loam</u> - <b>C2/B4</b> (C) with <u>shallow stony loam</u> - <b>L1</b> (M). The slopes are arable although there is a range of limitations associated with the predominantly shallow calcareous soils (restricted waterholding capacity, marginal fertility and stoniness). All slopes are susceptible to water erosion.
ESC	7.0	Undulating rises with slopes of 4-10% and relief to 30 m formed on fine grained rock. There is up to 50% rocky outcrop and 10% surface quartzite, siltstone and calcrete. Main soils: <u>shallow calcareous loam</u> - <b>A2</b> (E), <u>shallow stony loam</u> - <b>L1</b> (C) and <u>shallow gradational loam</u> - <b>C2/B4</b> (C). These slopes are semi arable due to extensive rock and stone and associated shallow soils. Marginal fertility and erosion potential provide additional limitations.
KDB KDC KDE KDJ	20.5 8.2 8.2 4.8	Outwash fans formed on carbonate capped fine to medium grained alluvium. <b>KDB</b> Slopes of 2-5% with less than 10% surface stone. <b>KDC</b> Slopes of 3-10% with less than 10% surface stone. <b>KDE</b> Drainage depressions with slopes of 2-4% and stable watercourses. <b>KDJ</b> Drainage depressions with slopes of 2-4% and eroding watercourses. Main soils: <u>deep gradational loam</u> - <b>C3</b> (E), with <u>hard loam over red clay</u> - <b>D2</b> (C), <u>deep calcareous loam</u> - <b>A5</b> (C) and <u>hard loam over dispersive red clay</u> - <b>D3</b> (L). This land is fully arable except for watercourses and their immediate surrounds. The soils are generally fertile. The D3 and D2 soils have poorly structured surfaces which run water, are difficult to work and are prone to erosion. Erosion in watercourses is widespread.
KIC	9.4	Complex of outwash fans with slopes of up to 10% and basement rock rises with slopes of 3-10%. There is 10-20% surface quartzite and siltstone. Main soils: <u>deep gradational loam</u> - <b>C3</b> (E) with <u>hard loam over red clay</u> - <b>D2</b> (C) on fans, and <u>shallow calcareous loam</u> - <b>A2</b> (C) with <u>hard loam over red clay on rock</u> - <b>D1</b> (L) on rises. This land is fully arable although it is uneven. Soils are generally shallow with limited waterholding capacity, and the calcareous soils are only moderately fertile. Stoniness and water erosion potential are limitations on slopes.

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

- |  |                                       |
|--|---------------------------------------|
| (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, Calcic / Lithocalcic Calcarosol)  
Calcareous loam to clay loam with abundant soft or rubbly carbonate at shallow depth over weathering siltstone at about 50 cm.
- A5** Deep calcareous loam (Regolithic, Lithocalcic / Hypercalcic Calcarosol)  
Calcareous loam to clay loam grading to rubbly or soft carbonate at shallow depth over clayey alluvium.
- C2/B4** Shallow gradational loam (Supracalcic / Petrocalcic, Red Dermosol)  
Medium thickness loam to clay loam grading to a well structured red clay, shallow on rubbly or semi-hard carbonate overlying weathering siltstone by 100 cm.
- C3** Deep gradational loam (Lithocalcic / Calcic, Red Dermosol)  
Medium thickness loam to clay loam grading to a well structured red clay with rubbly to soft carbonate at depth, over alluvium deeper than 100 cm.
- D1** Hard loam over red clay on rock (Calcic / Hypercalcic, Red Chromosol)  
Medium thickness hard setting loam to clay loam abruptly overlying a well structured red clay with soft carbonate at depth, grading to weathering siltstone within 100 cm.
- D2** Hard loam over red clay (Hypercalcic / Lithocalcic, Red Chromosol)  
Medium thickness, hard setting loam to clay loam abruptly overlying a well structured red clay grading to soft (occasionally rubbly) carbonate, over alluvium.
- D3** Hard loam over dispersive red clay (Calcic, Red Sodosol)  
Medium thickness hard setting loam to clay loam over a poorly structured dispersive red clay grading to soft carbonate over alluvium.
- L1** Shallow stony loam (Calcareous, Paralithic, Leptic Tenosol)  
Stony loam grading to weathering siltstone with soft carbonate in fissures, shallower than 50 cm.

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

