

# REE Reedy Creek Land System

Rocky valley of Reedy Creek between the ranges and the Murray River

**Area:** 37.1 km<sup>2</sup>

**Annual rainfall:** 350 – 450 mm average

**Geology:** The land is underlain by highly metamorphosed sandstones and granites of the Carrickalinga Head Formation and the Summerfield Granitoid Suite. These rocks are extensively capped by highly calcareous sediments of the Woorinen Formation.

**Topography:** The System represents the dissected valley of Reedy Creek where it has cut through the rocks underlying the Murray Plains between the eastern escarpment of the Mount Lofty Ranges and the river. The resulting topography includes:

- Moderately steep to steep and very rocky dissection slopes where the basement rock has been stripped of overlying calcareous materials and exposed with extensive outcrop.
- Gently inclined rises and slopes where carbonate capped basement rock is exposed.
- Outwash fans and drainage depressions where the eroded rock has been covered by recent sediments washed directly from the adjacent escarpment, or deposited by Reedy Creek and its tributaries.

**Elevation:** 10 m at the Reedy Creek outfall to the Murray River, to 210 m in the north

**Relief:** Up to 100 m, but usually in the range 30 - 50 m

**Soils:** Shallow calcareous and non calcareous sandy loams dominate the rising ground, and deep sandy loam surfaced soils with variable subsoils are characteristic of lower slopes and flats.

**Main soils:**

*Basement rock rises*

**A2a** Calcareous sandy loam  
**C2** Gradational sandy loam  
**L1** Shallow sandy loam

*Alluvial fans and flats*

**D2** Sandy loam over red clay

**Minor soils:**

*Alluvial fans and flats*

**M1** Deep alluvial loamy sand  
**C3** Gradational sandy loam  
**D5/M4** Loamy sand over red sandy clay loam  
**A3** Calcareous sandy loam

*Basement rock rises*

**A2b** Rubbly calcareous sandy loam

**Main features:** The Reedy Creek Land System is a complex of rocky non arable slopes, undulating rises formed on basement rocks, and gentle slopes and flats formed on alluvium. The rocky slopes have some grazing value, and also include recreational areas. The undulating rises are characterized by moderately shallow soils which are often calcareous. Productivity is affected by variable soil depth and sporadic rock outcrop. The alluvial slopes and flats have deeper soils, many of which are moderately fertile with productivity limited mainly by poorly structured surface soils and associated potential for erosion. Other alluvial soils are very sandy with poor waterholding capacity and fertility.



**Soil Landscape Unit summary:** 13 Soil Landscape Units (SLUs) mapped in the Reedy Land System

SLU	% of area	Main features #
AKB	13.4	Very rocky slopes on metasandstones, exposed by the downcutting of Reedy Creek. There is extensive to very extensive rock outcrop. Slopes are 5-25% and relief is up to 50 m. Main soils: <u>gradational sandy loam</u> - <b>C2</b> (E) and <u>shallow sandy loam</u> - <b>L1</b> (E). Although 10-20% of this land is arable (small areas between the outcrops), most is too rocky for any uses other than grazing, and is often too rocky for vehicular access.
AgB AgI	5.0 10.3	Very rocky rises and escarpment slopes. Underlying rocks are Summerfield granites. There is extensive rock outcrop. Narrow drainage depressions are included. <b>AgB</b> Slopes and rises to 40 m high with slopes of 5-25%. <b>AgI</b> Moderate to steep and irregular dissection slopes of the Mannum Waterfalls area, with eroded watercourses. Slopes are 10% to more than 100%, relief is up to 60 m. Main soils: <u>gradational sandy loam</u> - <b>C2</b> (E) and <u>shallow sandy loam</u> - <b>L1</b> (E) on slopes over rock, with <u>deep alluvial loamy sand</u> - <b>M1</b> (M) over locally derived alluvium in creek flats. Land is too rocky and often too steep for any uses other than grazing. Much of the land is too rocky for vehicular access.
EFC EFI	31.5 0.7	Slopes and rises formed on basement rocks partly capped by Woorinen Formation carbonates. Reefs of outcropping rock occupy between 5% and 10% of the land surface. There is variable surface quartzite and calcrete, usually between 10% and 20%. <b>EFC</b> Undulating slopes and rises with gradients of 2-8% formed on metasandstones. <b>EFI</b> Moderate slopes of 8-20% formed on metasandstones, with eroded watercourses. Main soils: <u>calcareous sandy loam</u> - <b>A2a</b> (E) and <u>gradational sandy loam</u> - <b>C2</b> (C), with <u>shallow sandy loam</u> - <b>L1</b> (L) and <u>rubbly calcareous sandy loam</u> - <b>A2b</b> (L) on basement rocks. <u>Deep alluvial loamy sand</u> - <b>M1</b> (M) occurs on creek flats. These soils are moderately deep to shallow. Soil depth varies erratically in response to underlying rock changes. Most of the land is arable, but restricted water holding capacity and excessive stone or rocky reefs limit productive potential. The mostly calcareous soils are only moderately fertile. The steeper slopes are prone to water erosion, although the soils are unlikely to run water except in very heavy or prolonged rainfall events.
EgC EgD	5.2 0.8	Gentle to moderate slopes formed on Summerfield granites. <b>EgC</b> Slopes of 3-10% with very minor rock outcrop. There is up to 20% surface quartzite <b>EgD</b> Moderate slopes of 8-15% with 10% rocky outcrop and up to 20% surface quartzite. Main soil: <u>calcareous sandy loam</u> - <b>A2a</b> (D). These soils are generally moderately shallow with restricted water holding capacities. Some induced nutrient deficiencies can be expected due to lime content of the soils. The steeper slopes are prone to water erosion, although the soils are unlikely to run water except in very heavy or prolonged rainfall events. The land is virtually fully arable with moderate productive potential.
JUB JUC JUH JUU	1.4 6.3 9.1 2.3	Outwash fans and drainage depressions formed on medium to fine grained alluvium. Basement rock highs project to the surface in places. There is usually a surface cover of 2-10% quartzite stones. <b>JUB</b> Very gently inclined fans with slopes of 2-4%. <b>JUC</b> Gently inclined fans with slopes of 3-8%. <b>JUH</b> Gently inclined fans with slopes of 3-10% and eroded water courses. <b>JUU</b> Drainage depression including lower slopes, flats and eroded water courses. Main soils: <u>sandy loam over red clay</u> - <b>D2</b> (E) and <u>gradational sandy loam</u> - <b>C3</b> (C), with <u>loamy sand over red sandy clay loam</u> - <b>D5/M4</b> (L) and <u>calcareous sandy loam</u> - <b>A3</b> (L), all on alluvium, and <u>calcareous sandy loam</u> - <b>A2a</b> (M) on basement rock highs. These soils are moderately deep and relatively fertile. Production potential is moderately high - the main limitations are due to poorly structured surfaces which affect seedling emergence, workability and water infiltration. Erosion is a potential problem on most of the land.
KXC KXJ	7.3 6.7	Outwash fans and flats formed on coarse grained outwash sediments. Basement rocks project to the surface in places on the fans. <b>KXC</b> Fans with slopes of 4-8%. <b>KXJ</b> Flat dominated by the Reedy Creek water course. The channel is eroded and in places the creek channel is swampy. Main soils: <u>deep alluvial loamy sand</u> - <b>M1</b> (E), with <u>calcareous sandy loam</u> - <b>A3</b> (L) and <u>loamy sand over red sandy clay loam</u> - <b>D5/M4</b> (L) formed on alluvium. <u>Calcareous sandy loam</u> - <b>A2a</b> (M) occurs on basement rock highs. These soils are mostly deep, but sandy, with limited waterholding capacity and low fertility. Erosion and flooding on the flat of Reedy Creek is a potential problem.



# 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:

- A2a** Calcareous sandy loam (Paralithic, Calcic Calcarosol)  
Medium thickness calcareous sandy loam to light sandy clay loam grading to a red or brown highly calcareous sandy clay loam with soft carbonate from about 35 cm merging with weathering rock at depths ranging from 60 cm to 100 cm.
- A2b** Rubblly calcareous sandy loam (Paralithic, Lithocalcic Calcarosol)  
Medium thickness calcareous sandy loam, more clayey with depth over Class III C carbonate rubble at about 25 cm, grading to weathering rock at about 50 cm.
- A3** Calcareous sandy loam (Regolithic, Calcic Calcarosol)  
Calcareous sandy loam grading to a highly calcareous sandy clay loam continuing below 100 cm.
- C2** Gradational sandy loam (Calcic / Eutrophic, Red Kandosol)  
Medium to thick sandy loam over a red massive sandy clay loam, often calcareous with depth, grading to weathering rock between 50 cm and 100 cm.
- C3** Gradational sandy loam (Calcic / Hypercalcic, Red Dermosol)  
Thick sandy loam grading to a well structured clay loam to light clay, calcareous from about 50 cm.
- D2** Sandy loam over red clay (Calcic / Eutrophic, Red Chromosol)  
Thick hard sandy loam abruptly overlying a red well structured clay, calcareous from about 50 cm in 50% of profiles.
- D5/M4** Loamy sand over red sandy clay loam (Eutrophic / Calcic, Red Chromosol / Kandosol)  
Thick loamy sand grading to sandy loam over a red massive sandy clay loam, calcareous from about 60 cm in a third of profiles over red or brown sandy clay loam to sandy clay continuing below 100 cm.
- L1** Shallow sandy loam (Lithic / Petrocalcic Rudosol)  
Medium thickness stony sandy loam to loamy sand over hard rock or calcreted rock within 30 cm.
- M1** Deep alluvial loamy sand (Basic, Regolithic, Brown-Orthic Tenosol)  
More than 100 cm loamy sand, paler with depth.

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

