

# SWE Swede Flat Land System

Swede Flat depression

**Area:** 36.9 km<sup>2</sup>

**Annual rainfall:** 500 – 525 mm average

**Geology:** The land system is a depression between two ancient coastal dunes. The underlying sediments are heavy Tertiary clays, possibly exposed by dissolution of the overlying calcarenite. The clays are weakly to moderately calcified. Small calcarenite remnants occur as "islands" within the depression.

**Topography:** Flats enclosed by calcreted hills of the West Naracoorte Range Land System. There are minor gilgai areas. The flats are subject to inundation as there is limited external surface drainage, although there are several runaway holes. Drains have been installed to dispose of excess surface water into the runaway holes or artificial drainage bores.

**Elevation:** 65 - 80 m

**Relief:** Less than 3 m except on isolated stony rises which are 10 m above the flats

**Soils:** The characteristic soils are hard loams to clays with tight subsoils

**Main soils:** *Flats*

**F2** Hard loam over dispersive brown clay

**E3** Hard grey cracking clay

**Minor soils:** *Rises*

**B3** Shallow stony loamy sand on calcrete

**B7** Sand over friable brown clay on calcrete

**G2** Sand grading to sandy clay loam

**H3** Deep bleached sand

**Vegetation:** Red gum, sedges

**Main features:** The Swede Flat Land System is a virtually landlocked depression characterized by clayey or loam over clay soils with moderate fertility. These soils have low permeability. As there is effectively no surface drainage, waterlogging and flooding are problems necessitating the installation of drainage channels and bores.

**Soil Landscape Unit summary:** 3 Soil Landscape Units (SLUs) mapped in the Swede Flat Land System

| SLU | % of area | Main features #  |
|-----|-----------|--|
| MHB | 0.2       | <p>Low rises &lt;10 m high projecting from the plain. Formed on calcarenite, blanketed by sand. Main soils: <u>deep sand</u> - <b>H3</b> (E) and <u>sand grading to sandy clay loam</u> - <b>G2</b> (L) on sand spreads, with <u>shallow stony loamy sand on calcrete</u> - <b>B3</b> (L) and <u>sand over friable brown clay on calcrete</u> - <b>B7</b> (M) on stony areas.</p> <p>The land is rapidly to moderately well drained due to permeable soils and elevated position. Salinity is low. Soil fertility is moderately low to moderate, due to the predominantly sandy surfaces. Waterholding capacities are moderately high (sandy soils) to low (shallow soils over calcrete). There are no physical constraints to root growth as most soils have firm to soft surface soils with friable subsoils. Sandy soils are susceptible to water repellence.</p> |



|     |      |   |
|-----|------|---|
| MJB | 1.9  | Low stony rises about 10 m high projecting from the plain. They are formed on calcarenite. Main soils: <u>shallow stony loamy sand on calcrete</u> - <b>B3</b> (E) and <u>sand over friable brown clay on calcrete</u> - <b>B7</b> (L), with <u>sand grading to sandy clay loam</u> - <b>G2</b> (C) and <u>deep sand</u> - <b>H3</b> (L) on sandier areas.<br>The land is rapidly to moderately well drained due to permeable soils and elevated position. Salinity is low. Soil fertility is moderately low to moderate, due to the predominantly sandy surfaces. Water holding capacities are low (shallow soils over calcrete) to moderately high (sandy soils). Most soils have firm to soft surface soils with friable subsoils, presenting no limitations to root growth. There is up to 10% surface calcrete and sheet rock. |
| TTA | 97.9 | Flat plain formed on heavy clays. Main soils: <u>hard grey cracking clay</u> - <b>E3</b> (E) and <u>hard loam over dispersive brown clay</u> - <b>F2</b> (E). The land is imperfectly to poorly drained, due to heavy slowly permeable clays and lack of surface drainage. Salinity is moderate to moderately high. Soil fertility is moderate, and water holding capacities moderate to high. Soils have hard setting surfaces and dispersive subsoils which impede emergence and root growth. Significant areas can be inundated in wet seasons.  |

# 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:

#### Flats

- F2** Hard loam over dispersive brown clay (Hypercalcic, Brown Sodosol)  
Medium thickness hard setting loamy sand to loam abruptly overlying a coarsely structured grey brown, yellow and red clay grading to soft carbonate.
- E3** Hard grey cracking clay (Epipedal, Grey Vertosol)  
Hard coarse blocky seasonally cracking grey clay, calcareous and prismatically structured at depth.

#### Rises

- B3** Shallow stony loamy sand on calcrete (Petrocalcic, Leptic Tenosol)  
Loamy sand to loam with variable rubble and slight clay increase with depth overlying calcreted calcarenite shallower than 50 cm.
- B7** Sand over friable brown clay on calcrete (Petrocalcic, Brown Chromosol)  
Medium thickness sand overlying yellowish brown friable clay on limestone or calcreted sandy clay within 50 cm.
- G2** Sand grading to sandy clay loam (Mesotrophic, Yellow Kandosol)  
Thick bleached sand, organically darkened at surface, over a yellow and red friable massive sandy clay loam.
- H3** Deep bleached sand (Basic, Arenic, Bleached-Orthic Tenosol)  
Thick to very thick bleached sand, organically darkened at the surface over yellow sand continuing below 100 cm.

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

