TIN Tintinara Land System

(Based on the description by A.K. McCord in "A Description of Land in the Southern Mallee of South Australia")

Plains in the Tintinara area

Area: 206.3 km^2

Annual rainfall: 425 - 475 mm average

Geology: The land is underlain by lagoonal limestones and sandy clays of the Padthaway Formation. The land surface is partly covered by Molineaux Sand which has been reworked to some extent into low to moderate sand ridges.

Topography: Flat plains with very low gentle rises, sometimes stony, but generally formed on Molineaux Sand, as irregular sandhills.

Elevation: 14-25 m

Relief: Less than 5 m

Soils: Shallow sands to sandy loams over calcreted limestone are most common, with sandy soils sub dominant.

Main soils

B7 Loamy sand over red or brown clay on limestone - extensive (flats).
B3 Shallow stony loamy sand on calcrete - common (flats).
B6 Sandy loam over clay on limestone - common (flats).

Minor soils

B8 Shallow sand on calcrete - flats and stony rises

H3 Deep siliceous sand - sandy rises
G2 Sand grading to sandy clay loam - sandy rises

Main features: The Tintinara Land System is characterized by flats with shallow soils over limestone. The loamy types have few limitations to cropping other than restricted waterholding capacity, but the sandy types have lower fertility and are more susceptible to wind erosion and water repellence. The rises (mostly sandy) have very low fertility soils highly susceptible to erosion and repellence. Rising water tables pose a threat to sustainability.

Soil Landscape Unit summary: 4 Soil Landscape Units (SLUs) mapped in the Tintinara Land System

SLU	% of area	Main features #
NAA NAD NAa	87.0 5.1 7.6	Plains with variable very low sandy or stony rises formed on calcreted sediments of the Padthaway Formation. Groundwater tables are within two metres of the surface. **NAA** Plains with minor low sandy and stony rises. **NAD** Complex of plains and about 30% low sandy (occasionally stony) rises. **NAa** Plains as for **NAA**, but marginally saline. Main soils: *Flats:* loamy sand over red or brown clay on limestone - **B7** (E-C) and shallow stony loamy sand on calcrete - **B3** (E-C), with sandy loam over clay on limestone - **B6** (L) and shallow sand on calcrete - **B8** (M). *Rises:* deep siliceous sand - **H3** (M-L) and sand grading to sandy clay loam - **G2** (M-L), with shallow sand on calcrete - **B8** (M). Key properties: Drainage: Well to moderately well drained (flats), rapidly drained (rises). Fertility: Moderately low (flats) to low (rises). Physical condition: There are no significant surface or subsurface soil structure impediments to root growth. AWHC: Moderately low to moderate (flats). Moderately low (rises). Salinity: Flats: Low in surface to moderate in subsoil. Moderate to moderately high in **NAa**. Rises: Low. This land is being increasingly affected by rising saline groundwater tables. Erosion potential: Water: Low. Wind: Moderate to moderately low on flats. High on rises. Water repellence: Moderate on flats. High on rises. Rockiness: Up to 5% surface calcrete stone on flats with minor heavier patches. Summary: Flats dominated by soils with sandy or sandy loam surfaces over clayey subsoils usually at shallow depth, over calcreted limestone. Drainage is generally moderate to good, fertility is moderately low. Rising saline groundwater tables have the potential to cause substantial loss of productivity.
O-B	0.3	Isolated moderate jumbled sand dunes. Main soil: deep siliceous sand - **H3** (D). Key properties: Drainage: Rapid. Fertility: Very low. Physical condition: No limitations (soft to loose sand). AWHC: Moderately low to moderate. Salinity: Low. Erosion potential: Water: Low. Wind: Moderately high. Water repellence: High. Rockiness: Nil. Summary: The land is dominated by moderate sandhills with very low fertility, and prone to water repellence and wind erosion.

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:

B3 Shallow stony loamy sand over calcrete (Petrocalcic, Leptic Tenosol)
Medium thickness loamy sand to sandy loam overlying a layer of mixed calcrete rubble and pockets of brown sandy clay grading to calcreted lagoonal sediments.

B6 Sandy loam over clay on limestone (Petrocalcic, Brown Chromosol)
Thin sandy loam abruptly overlying a brown sandy clay, calcareous at shallow depth and grading to interbedded lagoonal limestones and sandy clays within 50 cm.

B7 Loamy sand over red or brown clay on limestone (Calcic, Red / Brown Chromosol)
Medium thickness loamy sand to light sandy loam abruptly overlying a red or brown sandy clay loam to sandy clay, calcareous with depth, grading to interbedded limestones and sandy clay lagoonal sediments at depths between 50 and 100 cm.

B8 Shallow sand on calcrete (Basic, Petrocalcic, Bleached-Leptic Tenosol)
Medium thickness sand with a bleached A2 layer, abruptly overlying calcreted lagoonal sediments 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 siliceous sand (Basic, Arenic Bleached-Orthic / Yellow-Orthic Tenosol)
Very thick light grey sand, paler coloured or bleached from about 10 cm, grading to yellow sand continuing below 200 cm.

Further information: DEWNR Soil and Land Program