TIE Tintinara East Land System

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

Gently undulating sandplain with extensive sandhills, east of Tintinara

Area: 94.3 km^2

Annual rainfall: 425 - 475 mm average

Geology: The land system is underlain at depth by sandy limestones of the Coomandook Formation. These sediments are entirely covered by younger calcareous sandy clays and sandy limestones of the Padthaway Formation, which in turn are overlain by aeolian Molineaux Sand as a thin veneer or as thicker reworked dune deposits. There is very little secondary carbonate above the limestone substrate materials.

Topography: The Tintinara East Land System is a flat to very gently undulating sand plain extensively overlain by frequent low to moderate and occasionally high jumbled sand dunes.

Elevation: 20 - 50 m

Relief: Less than 10 m

Soils: Sandy soils are dominant

Main soils:
H3/G2 Sand over sandy clay loam - Very extensive on flats
H3 Deep siliceous sand - Extensive on sand dunes

Main features: The Tintinara East Land System is a gently undulating plain dominated by sandy soils. These are either deep sands on dunes with very low fertility and high susceptibility to water repellence and wind erosion, or sand over clay soils on flats with similar but less limiting characteristics. Neither of these soils is suitable for sustainable cropping, so perennial pastures based on lucerne are the predominant land use.

Soil Landscape Unit summary: 6 Soil Landscape Units (SLUs) mapped in the Tintinara East Land System

SLU	% of area	Main features #
NGD	72.2	Very gently undulating plains formed on a sandy phase of the Padthaway Formation with 20-30% sandy rises. Main soils: sand over sandy clay loam - **H3/G2** (V) and deep siliceous sand - **H3** (C) on rises. Key properties: Drainage: Rapidly to well drained. Fertility: Low (to very low on sand rises). Physical condition: No surface limitations. Subsoil clay in shallower H3/G2 soils impedes root growth to a minor extent. AWHC: Moderately low. Salinity: Low, although rising ground water tables pose a threat. Subsoil levels often moderate. Erosion potential: Water: Low. Wind: Moderate (rises) to moderately low.

		Water repellence: Repellent to strongly repellent. Rockiness: Nil. Summary: The land is dominated by sandy surface soils which are marginally fertile and subject to water repellence and wind erosion. Capability for cropping is low. Grazing of perennial pastures is the most extensive land use. Rising water tables are a threat in lower lying areas.
O-B	0.4	Moderate jumbled sand dunes formed on Molineaux Sand. Main soil: deep siliceous sand - **H3** (D). Key properties: Drainage: Rapid Fertility: Very low. Physical condition: No restrictions. AWHC: Low. Salinity: Low Erosion potential: Water: Low Wind: Moderately high Water repellence: Strongly repellent. Rockiness: Nil. Summary: These sand dunes are highly infertile and prone to water repellence and wind erosion. Once cleared, they readily become unstable.
OAE OAF OAG OAJ	4.5 11.2 2.5 9.2	Gently undulating plains with more than 30% irregular sand dunes. **OAE** 60-90% high sand dunes **OAF** 60-90% moderate sand dunes. **OAG** 60-90% low sand dunes. **OAJ** 30-60% low sand dunes. Main soils: deep siliceous sand - **H3** (V-E) on rises, and sand over sandy clay loam - **H3/G2** (E) on swales and flats. Key properties: Drainage: Rapidly to well drained. Fertility: Very low to low. Physical condition: No restrictions other than subsoil clay in shallower soils in some swales. AWHC: Low to moderate. Salinity: Low. Erosion potential: Water: Low. Wind: Moderately high to high. Water repellence: Strongly repellent on deep sands. Rockiness: Nil. Summary: The predominant sand dunes are highly susceptible to water repellence and wind erosion and are not suited to cropping. Pasture productivity relies on fertility maintenance including acidity control.

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:

H3/G2 Sand over sandy clay loam (Eutrophic, Brown Chromosol)
Very thick grey sand with a bleached A2 layer abruptly overlying a thin band of brown fine sandy clay loam with a limestone layer capping sandy Padthaway Formation sediments within 100 to 150 cm.

H3 Deep siliceous sand (Basic, Arenic, Bleached-Orthic Tenosol)
Grey loose sand with a thick bleached A2 layer grading to yellowish sand continuing below 200 cm.

Further information: DEWNR Soil and Land Program