

TIW Tintinara West Land System

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

Flat sand plain with low stony and sandy rises, west of Tintinara

Area: 23.8 km²

Annual rainfall: 450 - 475 mm average

Geology: The land is underlain at depth by sandy limestones of the Coomandook Formation. An ancient coastal dune - corridor system formed over the top of these sediments, resulting in a series of calcarenite rises (Bridgewater Formation) and intervening calcareous clay to sand and limestone flats (Padthaway Formation). The sediments of the flats are limestone capped. The calcarenite of the rises has hardened at the surface to form a calcrete cap of variable thickness. Minor deposits of aeolian Molineaux Sand are scattered across the landscape.

Topography: The Tintinara West Land System is a flat sand plain with about 30% undulating low stony rises and about 10% very low sandy rises.

Elevation: 14 - 40 m

Relief: Up to 15 m

Soils: Most soils are moderately shallow sand to sandy loam with clayey subsoil over limestone. There is minor deep sand.

Main soils

B7a Loamy sand over red sandy clay - very extensive (flats)

B6 sandy loam over red clay - extensive (stony slopes and rises)

Minor soils

H3 Deep siliceous sand - sandy rises

B7b Loamy sand over brown sandy clay on calcrete - stony rises

Main features: The Tintinara West Land System is a flat sand plain with stony and minor sandy rises. The plains have moderately shallow sandy texture contrast soils of low fertility. They are susceptible to water repellence and wind erosion. They are widely used for perennial pastures. The stony rises are more productive (loamier soils) despite being relatively shallow. Surface stones and reefs restrict arability in places. Minor sandy rises are very infertile and erosion prone. They are not cropped.



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

SLU	% of area	Main features #
MJB	30.7	<p>Low rises formed on calcreted calcarenites, with limited sand spreads. Main soil: <u>sandy loam over red clay</u> - B6 (V), with <u>loamy sand over brown sandy clay on calcrete</u> - B7b (L) and <u>deep sand</u> - H3 (L). Key properties are:</p> <p>Drainage: Well drained. Fertility: Moderately low. Physical condition: There are no physical limitations to root growth in the soil above the calcrete. AWHC: Moderately low to low. Salinity: Low. Erosion potential: Water: Low. Wind: Low. Water repellence: Nil. Rockiness: Up to 20% surface calcrete with occasional outcropping reefs.</p> <p><u>Summary:</u> The rises are dominated by moderately shallow to shallow soils of marginal fertility with significant surface stone and some outcrop, restricting cultivation in some areas. Despite their shallowness, the soils are successfully farmed.</p>
NAA NAC	3.8 64.9	<p>Flats with variable sandy and stony rises. NAA Flats with negligible rises. NAC Flats with 10-20% low sandy rises and up to 10% very low stony rises. Main soils: <u>loamy sand over red sandy clay</u> - B7a (V) on flats, with <u>deep sand</u> - H3 (L) on sandy rises and <u>sandy loam over red clay</u> - B6 (M) on stony rises.</p> <p>Key properties are:</p> <p>Drainage: Well to rapidly drained (flats) and 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: Low in surface to moderate in subsoil. Low on rises. Rising saline water tables affecting land elsewhere in the district should be monitored. Erosion potential: Water: Low. Wind: Moderate to moderately low on flats. High on sandy rises. Water repellence: Moderate on flats. High on rises. Rockiness: Up to 5% surface calcrete stone on flats with heavier patches.</p> <p><u>Summary:</u> Flats dominated by soils with sandy surfaces over clayey subsoils usually at shallow depth. Drainage is generally moderate to good, fertility is moderately low. Rising saline groundwater tables have the potential to cause substantial loss of productivity. Depth to water tables should be monitored.</p>
OEG	0.6	<p>Flats with 30-60% low sandy rises. Main soils are <u>loamy sand over red sandy clay</u> - B7a (E) on flats and <u>deep sand</u> - H3 (E) on rises. Key properties are:</p> <p>Drainage: Rapidly to well drained. Fertility: Low to very low. Physical condition: There are no impediments to root growth in the soil above the limestone layer (on flats). No impediments on rises. AWHC: Moderately low to moderate. Salinity: Low. Erosion potential: Water: Low. Wind: Moderate to high. Water repellence: Strong. Rockiness: Nil.</p> <p><u>Summary:</u> The land is characterized by sandy rises and dunes with very low fertility but well drained soils prone to water repellence and erosion. Sandy flats with clayey subsoils are potentially more productive than the sandy rises.</p>



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

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| (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:

B6 Sandy loam over red clay (Supracalcic / Petrocalcic, Red Chromosol)

Thin sandy loam to light sandy clay loam abruptly overlying a red clay on calcreted calcarenite (Bridgewater Formation) within 50 cm.

B7a Loamy sand over red sandy clay (Bleached, Calcic, Red Chromosol)

Medium thickness light sandy loam to sand abruptly overlying a red brown sandy clay with a thin band of limestone from about 50 cm. This overlies clayey to sandy Padthaway Formation sediments with interbedded limestones.

B7b Loamy sand over brown sandy clay on calcrete (Petrocalcic, Brown Chromosol)

Medium thickness loamy sand to light sandy loam abruptly overlying a thin brown friable sandy clay over calcreted Bridgewater Formation calcarenites within 50 cm.

H3 Deep siliceous sand (Basic, Arenic, Bleached-Orthic Tenosol)

Loose grey sand with a paler coloured A2 layer grading to a yellow sand continuing below 200 cm.

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

