TIG Tiger Plain Land System

Dissected calcrete plain west of Morgan

Area: 187.3 km^2

Annual rainfall: 200 – 225 mm average

Geology: The land system is underlain by clayey alluvial sediments capped by calcrete. The calcrete originally would have been in extensive sheet form, but dissolution and /or erosion has partially removed the capping, with the result that the land surface is now formed on either the original sheet calcrete, partially dissected calcrete (usually characterized by rubbly remnants), or the older clay sediments where the calcrete has been completely removed.

Topography: The Tiger Plain Land System is a very gently undulating plain with an overall grade to the east of about 0.5%. Localized topography is a gently undulating mosaic of calcrete benches (old land surface) and depressions. Slopes on rises from depression to bench are less than 3%. The depressions are typically rounded with concave section and are either closed or have narrow openings to channels connecting them to other depressions. In the west are some minor water courses and ephemeral lake beds. There is a variable cover of surface stone, mostly calcrete, but some minor quartzite. Heaviest stone cover is on rises, with little or none in depressions.

Elevation: 100 m in the north west to 60 m on the eastern side

Relief: Maximum local relief is 10 m

Soils: Most soils are calcareous, with some non to weakly calcareous red loams

Main soils

B2 Calcareous loam over sheet calcrete - Extensive on rises
A4 Rubbly calcareous loam - Extensive on rises
A3/A6 Calcareous loam - Extensive on flats

Minor soils

A5 Rubbly calcareous loam over clay - Limited on flats
C3 Gradational loam - Limited on flats
D4 Loam over red clay - Limited on flats

Main features: The Tiger Plain Land System is flat to very gently undulating with predominantly calcareous soils. Most of the soils on rises are shallow and rubbly, but in the depressions they are deeper. All soils are alkaline to the surface and strongly alkaline at depth. The over-riding limitation to land use is the low rainfall. Rangeland grazing is the predominant land use, although substantial areas (especially the stony rises) have either not been cleared of mallee scrub, or have regenerated.

Soil Landscape Unit summary: 6 Soil Landscape Units (SLUs) mapped in the Tiger Plain Land System

SLU	% of area	Main features #
IAA IAE	10.6 5.1	Drainage depressions and flats formed on clayey alluvium. The sediments contain minor to moderate quartzite gravel, but there is little or no surface stone. There is sporadic scalding throughout. **IAA** Roughly circular depressions with slightly concave cross section. They are either closed or they connect with other depressions via narrow unmappable channels. These are incised 5-10 m into the surrounding calcrete plain. **IAE** Elongate open ended drainage depressions with weakly defined water courses and minor ephemeral lake beds. Main soils: calcareous loam - **A3/A6** (V), with gradational loam - **C3** (L) and loam over red clay - **D4** (L). These soils are deep, well structured and moderately fertile, although alkaline throughout, and strongly alkaline with depth. Low rainfall is the major limitation to productivity.
JLA JLp	0.1 0.4	Depressions formed on alluvial sediments. **JLA** Depressions with minor scalding. **JLp** Depressions with severe scalding. Main soils: loam over red clay - **D4** (V), with calcareous loam - **A3/A6** (L) and gradational loam - **C3** (L). These soils are deep, well structured and moderately fertile, although alkaline throughout, and strongly alkaline with depth. Low rainfall is the major limitation to productivity.
QLA	69.3	Gently undulating plain in which an old calcreted land surface has been dissected by dissolution and / or erosion to produce a mosaic of remnant calcrete benches and depressions in a ratio of about 3:1. The plain has an overall gradient to the east of 0.5%, but short slopes from depression to bench are up to 3%. Relief is usually less than 5 m. Larger depressions are mapped as **IAA**. Main soils: calcareous loam over sheet rock - **B2** (E) and rubbly calcareous loam - **A4** (E) on benches with calcareous loam - **A6** (L) and rubbly calcareous loam over clay - **A5** (L) in depressions. The soils are mostly shallow to very shallow with limited waterholding capacity and high pH. Soils in the depressions tend to be deeper. However, low rainfall is the most limiting factor – grazing of natural shrubs or grasses being the dominant land use.
SRA	14.5	Very gently undulating flats formed on clayey alluvium capped by calcrete. The calcrete cap has been largely removed leaving a landscape of flats similar to **IAA** with stony rises similar to **QLA**, in an unmappable mosaic pattern. There is variable surface calcrete stone - negligible on flats and up to 20% on rises. Main soils on flats: calcareous loam - **A3/A6** (V), with rubbly calcareous loam over clay - **A5** (C) and gradational loam - **C3** (M). Main soils on rises: rubbly calcareous loam - **A4** (V) with calcareous loam over sheet rock - **B2** (L). The main effect of the variability in depth of the soils is on moisture holding capacity. Otherwise, they are almost all calcareous throughout and strongly alkaline at depth. Much of the land is undeveloped due to the low rainfall and significant proportion of shallow soils.

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:

A3/A6 Calcareous loam (Hypercalcic Calcarosol)
10 - 20 cm calcareous loam to clay loam becoming more clayey and calcareous with depth with abundant soft carbonate from 30 cm grading to a reddish clay (older alluvium) from 60 cm. Variable quartzite gravel occurs throughout. Extensive on flats.

A4 Rubbly calcareous loam (Supracalcic / Lithocalcic Calcarosol)
10 - 20 cm calcareous sandy loam to loam over a rubbly Class III B or III C carbonate layer, over a very highly calcareous light brown sandy clay loam (A4 profiles), becoming gradually more clayey with depth. Extensive on rises.

A5 Rubbly calcareous loam over clay (Supracalcic / Lithocalcic Calcarosol)
10 - 20 cm calcareous sandy loam to loam over a rubbly Class III B or III C carbonate layer grading to reddish clay alluvium within 100 cm in 30% of profiles. Limited on flats.

B2 Calcareous loam over sheet rock (Petrocalcic Calcarosol)
10 - 20 cm calcareous sandy loam to loam grading to rubbly sandy loam to sandy clay loam abruptly overlying sheet calcrete at 30 cm. Extensive on rises.

C3 Gradational loam (Calcic, Red Dermosol)
10 - 20 cm loam to clay loam grading to a well structured red clay, calcareous from 30 cm, grading to a reddish alluvial clay from 60 cm. Surface soil may be calcareous from carbonate dusting. Limited on flats.

D4 Loam over red clay (Calcic, Pedaric, Red Sodosol)
5 - 20 cm sandy loam to loam abruptly overlying a well structured friable red clay, calcareous from 30 cm, grading to a reddish alluvial clay from 55 cm. The clay may contain variable quartzite gravel or gypsum crystals. Extensive on flats, particularly in the east. The subsoil clay is friable although sodic (Pedaric) due to moderate salt content. Surface soil may be calcareous from carbonate dusting. Limited on flats.

Further information: DEWNR Soil and Land Program