

BUT Butler Tanks Land System

Area: 131.1 km²

Landscape: Rises and low hills formed on Tertiary clays and alluvial sediments derived from reworking of basement rocks (Pooraka Formation). Associated with these sediments are remnants of Ripon / Bakara Calcretes. Underlying the landscape (and probably responsible for its overall landform) are basement rocks. These outcrop sporadically.

Annual rainfall: 340 – 415 mm average

Main soils:

Butler - F2 (Hypercalcic, Brown Sodosol)
Thin to medium thickness hard loamy sand to sandy loam over a brown mottled clay with strong columnar structure, highly calcareous from about 20 cm, grading to alluvial or Tertiary clays.

Wharminda - G4 (Hypercalcic, Brown Sodosol)
Medium to thick sand with a bleached A2 layer abruptly overlying a hard columnar structured dispersive brown mottled clay, highly calcareous with depth, grading to alluvial or Tertiary sediments.

Minor soils:

Red brown earth (sandy) - D5 (Eutrophic / Calcic, Red Chromosol)
Medium to thick hard loamy sand to sandy loam with a massive sandy clay loam A2 layer, over a weakly prismatic red clay grading to Tertiary or alluvial sediments.

Calcrete - B2 (Petrocalcic, Lithocalcic Calcarosol)
Thin calcareous sandy loam to clay loam over hard calcrete, associated with abundant surface calcrete and sheet rock.

Skeletal soil - L1 (Lithic / Petroferric, Leptic Tenosol / Rudosol)
Variable gravelly loamy sand to sandy clay loam over basement rock at depths usually less than 50 cm.

Saline soil - N2 (Salic / Hypersalic Hydrosol)
Miscellaneous wet saline soil influenced by rising saline groundwater tables.

Summary: Gently undulating to undulating rises and low hills dominated by poorly structured soils. The most common soil has a loamy sand to sandy loam surface which can set hard, over a dispersive clayey subsoil at shallow depth. The subdominant soil has a loose sandy surface with a similar subsoil, although usually deeper. Fertility is moderate to low depending on texture. Dispersive subsoils impede drainage and root growth, and exacerbate the potential for water erosion. The sandy soils are prone to wind erosion and water repellence, while the sandy loam surfaces (when sealed) impair seedling emergence and increase runoff. Minor soils include more favourable sandy loam over clay soils, shallow soils over basement rock or calcrete, and saline soils on salty flats.



Soil Landscape Unit summary: 8 Soil Landscape Units (SLUs) mapped in the Butler Tanks Land System:

SLU	% of area	Component	Main soils	Prop#	Notes
AMC	2.3	Rocky rises and low hills	Skeletal	D	Shallow stony soils associated with rock outcrop - non arable.
HEB	37.6	Gently undulating slopes	Butler / Wharminda	D	Gently undulating (slight water erosion potential) and undulating (moderate water erosion potential) slopes on Tertiary and Pooraka sediments, with sandy loam to sand surface texture contrast soils. Poor soil structure is the main limitation. There is sporadic salinity. Soils are: <u>Butler:</u> Sandy loam over poorly structured clay - moderately fertile but subject to waterlogging and poor root growth (dispersive subsoil). <u>Wharminda:</u> Low fertility sandy soil with poorly structured subsoil (waterlogging, poor root growth), moderate wind erosion potential. Prone to water repellence and acidification. <u>RBE sandy:</u> Sandy loam over well structured clay - moderately fertile and deep, but susceptible to water erosion. <u>Calcrete:</u> Very shallow and stony with abundant surface stone and sheet calcrete - non arable
HEL	8.3	Gently undulating slopes with minor saline seepages	Butler / Wharminda	D	
HHB	9.3	Gently undulating slopes with minor saline seepages	Butler	V	
		Calcrete outcrops	Calcrete	L	
HIC	4.0	Undulating slopes	RBE sandy	D	
HJC	33.4	Undulating slopes with minor saline seepages	Butler	D	
QPB	1.9	Stony rises	Calcrete	V	Semi arable rises formed on Tertiary sediments partly capped by calcrete. Main soils are shallow and stony with some sheet calcrete - semi arable. Limited sandy soils (Wharminda) are as described above.
		Sandy slopes	Wharminda	L	
ZB-	3.2	Saline flats	Saline soil	D	Flats with variable salinity, but most of which are suitable for establishment of salt tolerant pasture or forage species.

PROPORTION codes assigned to Soil Landscape Unit (SLU) components:

- 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)

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

