

PGC Pooginagoric Land System

Flat to gently undulating plains in the Pooginagoric - Mundulla area

Area: 129.5 km²

Annual rainfall: 505 – 520 mm average

Geology: The land system is formed on heavy clay sediments, probably of Tertiary age. The clays are mantled by soft fine grained carbonates, leached through the soil from windblown materials deposited across the landscape during Recent geological time.

Topography: The Pooginagoric Land System includes the flat to gently undulating land between the elevated clayey plains of the Wolseley Land System to the north and the light sandhill country of the Geegeela Land System to the south. The main characteristic of the unit is impeded drainage caused by typically slowly permeable subsoils and often flat topography. Networks of natural watercourses and artificial drains direct surface water northwards and westwards into Nalang Creek or natural swamps. Numerous drainage bores have been installed to assist in disposal.

Elevation: 65 m in the west to 95 m in the east

Relief: Less than 5 m

Soils: The soils are mainly texture contrast types with loamy sand to sandy loam surfaces over clayey subsoils, many of which are dispersive. Cracking clays occur to a limited extent.

Main soils

F2	Hard loam over dispersive brown clay
E3	Hard grey cracking clay
D3	Sandy loam over dispersive red clay
F1	Hard loamy sand over brown clay

Minor soils

D2	Loam over friable red clay
E1	Black cracking clay
G3	Loamy sand over brown clay

Main features: The Pooginagoric Land System is characterized by flat to gently undulating plains dominated by texture contrast or clayey soils with impeded drainage and poor surface and/or subsoil structure. The combination of slowly permeable clays and low lying topography is responsible for the lack of drainage. Poor surface soil structure affects water infiltration, soil workability and seedling emergence. Poor subsoil structure causes subsurface waterlogging and impaired root distribution patterns. There is likely to be some accumulation of subsoil salts including boron.



Soil Landscape Unit summary: 9 Soil Landscape Units (SLUs) mapped in the Pooginagoric Land System:

SLU	% of area	Main features #
GfB	0.5	<p>Undulating rises formed on clayey sediments. Main soils: <u>loamy sand over brown clay - G3</u> (E) on rises and <u>hard loam over dispersive brown clay - F2</u> (E) on flats.</p> <p>Key properties:</p> <p>Drainage: Moderately well (rises). Imperfect (flats) where perched water tables are more likely to develop on dispersive clay subsoils.</p> <p>Fertility: Moderate to moderately low, depending on sandiness of soil.</p> <p>Physical condition: Surface soils are good to fair, with some hard setting. Dispersive subsoils (F2) impede root growth. Structure of G3 soils is satisfactory.</p> <p>AWHC: Moderately high.</p> <p>Salinity: Moderately low (subsoil).</p> <p>Erosion potential: Water: Moderately low to moderate, depending on slope. Wind: Moderately low.</p> <p>Water repellence: Slight to nil.</p> <p>Rockiness: Nil.</p> <p><u>Summary:</u> Marginal fertility and poor structure, with waterlogging on lower slopes are the main features.</p>
HbA	27.8	<p>Gently undulating plains formed on clayey sediments. Main soils: <u>hard loam over dispersive brown clay - F2</u> (E), <u>sandy loam over dispersive red clay - D3</u> (E) and <u>hard grey cracking clay - E3</u> (E).</p> <p>Key properties:</p> <p>Drainage: Imperfect. Dispersive subsoils cause subsurface waterlogging.</p> <p>Fertility: Moderate.</p> <p>Physical condition: Poor. All soils have hard setting surfaces, and dispersive coarsely structured subsoils which impede root growth.</p> <p>AWHC: Moderate to high.</p> <p>Salinity: Moderate (subsoil).</p> <p>Erosion potential: Water: Low. Wind: Low.</p> <p>Water repellence: Nil.</p> <p>Rockiness: Nil.</p> <p>Other: Sporadic boron toxicity is likely.</p> <p><u>Summary:</u> Impeded drainage and poor soil structure are the main features.</p>
HbB	27.9	<p>Undulating rises formed on clayey sediments. Main soils: <u>hard loamy sand over brown clay - F1</u> (E) and <u>sandy loam over dispersive red clay - D3</u> (C) on rising ground, <u>hard loam over dispersive brown clay - F2</u> (L) on flats, with <u>loam over friable red clay - D2</u> (L) adjacent swamps.</p> <p>Key properties:</p> <p>Drainage: Imperfect (D3 and F2) to moderately well drained (F1 and D2).</p> <p>Fertility: Moderately low (sandier soils) to moderately high (loamy soils).</p> <p>Physical condition: Hard setting surfaces are common. Most soils have coarsely structured, hard and/or dispersive subsoils which impede root growth.</p> <p>AWHC: Moderately high.</p> <p>Salinity: Moderate to moderately low (subsoil).</p> <p>Erosion potential: Water: Moderately low to low. Wind: Moderately low.</p> <p>Water repellence: Nil.</p> <p>Rockiness: Nil.</p> <p><u>Summary:</u> Poor soil structure, imperfect drainage and marginal soil fertility are the main features.</p>



HcA	11.6	<p>Flats with very low relief formed on clayey sediments. Main soils: <u>hard loam over dispersive brown clay</u> - F2 (E) with <u>hard grey cracking clay</u> - E3 (E).</p> <p>Key properties:</p> <p>Drainage: Imperfect to poor. Dispersive subsoils in loam over clay soils, and heavy sodic clays of the cracking soils have low permeability.</p> <p>Fertility: Moderate.</p> <p>Physical condition: Most surface soils set hard, and the clays crack as well. Subsoils are generally coarsely structured and prevent good root growth distribution.</p> <p>AWHC: Moderately high.</p> <p>Salinity: Moderately low to moderate (subsoil).</p> <p>Erosion potential: Water: Low. Wind: Low.</p> <p>Water repellence: Nil</p> <p>Rockiness: Nil.</p> <p>Other: Sporadic boron toxicity is likely.</p> <p><u>Summary:</u> Poor drainage and soil structure are the main features.</p>
O-D	0.1	<p>Isolated sand hills, remote from the main areas of deep sand deposits. Soils are deep but infertile, water repellent and prone to wind erosion.</p>
TTA	10.7	<p>Flats with gilgai (crabholes) formed on clayey sediments. Main soils: <u>hard grey cracking clay</u> - E3 (E), <u>hard loam over dispersive brown clay</u> - F2 (E) and <u>black cracking clay</u> - E1 (L).</p> <p>Key properties:</p> <p>Drainage: Imperfect to poor. All soils are have low permeability clays at shallow depth and surface drainage is very slow.</p> <p>Fertility: Moderate to high.</p> <p>Physical condition: Fair to poor. F2 and E3 soils have hard setting surfaces and clays (E3) crack as well. They also have coarsely structured subsoils which restrict root growth. Black clays (E1) are better structured.</p> <p>AWHC: Moderate to high.</p> <p>Salinity: Moderate (subsoil).</p> <p>Erosion potential: Water: Low. Wind: Low.</p> <p>Water repellence: Nil.</p> <p>Rockiness: Nil.</p> <p>Other: Crabholes are prone to flooding. Sporadic boron toxicity is likely.</p> <p><u>Summary:</u> Impeded drainage and poor soil structure are the main features.</p>
TTB	20.1	<p>Gently undulating rises formed on clayey sediments. Main soils: <u>hard loam over dispersive brown clay</u> - F2 (E), <u>hard loamy sand over brown clay</u> - F1 (E) and <u>hard grey cracking clay</u> - E3 (E).</p> <p>Key properties:</p> <p>Drainage: Imperfect. All soils have slowly permeable subsoil clays.</p> <p>Fertility: Moderately low to moderate. Sandier surfaces have lower natural fertility than clayey soils.</p> <p>Physical condition: Fair to poor. All soils have surfaces which tend to set hard, and most have tight clay subsoils which impede root growth.</p> <p>AWHC: Moderate to high.</p> <p>Salinity: Moderate (subsoil).</p> <p>Erosion potential: Water: Low. Wind: Low to moderately low.</p> <p>Water repellence: Nil.</p> <p>Rockiness: Nil.</p> <p>Other: Sporadic boron toxicity is likely.</p> <p><u>Summary:</u> Impeded drainage and poor structure are the main features.</p>



VZ-	0.4	Playas, or old swamp beds, roughly circular in shape and no longer subject to regular inundation. Main soils: <u>hard loam over dispersive brown clay</u> - F2 (V) and <u>shallow calcareous loam</u> - B2/A4 (E). These soils are moderately fertile, but have variable drainage characteristics. Some may be marginally saline, but elevated salt levels were not detected. They flood in wet years.
Xq-	0.9	Fresh to marginally saline swamps, at least seasonally inundated.

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

(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:

- D2** Loam over friable red clay (Hypercalcic, Red Chromosol)
Medium thickness red brown loam abruptly overlying a red brown well structured clay grading to soft carbonate or calcarenite at 50 - 100 cm.
- D3** Sandy loam over dispersive red clay (Calcic, Red Sodosol)
Thin to medium thickness hard sandy loam (often ironstone gravelly) abruptly overlying a coarsely structured dispersive red and yellow brown clay, with soft carbonate at depth.
- E1** Black cracking clay (Self-mulching, Black Vertosol)
Black self-mulching seasonally cracking clay, becoming coarser structured, greyer and calcareous with depth.
- E3** Hard grey cracking clay (Epipedal, Grey Vertosol)
Hard coarse blocky seasonally cracking grey clay, calcareous and prismatic structured at depth.
- F1** Hard loamy sand over brown clay (Calcic, Brown Chromosol)
Thick hard loamy sand with a bleached A2 layer abruptly overlying a hard coarsely structured brown, red and yellow clay, calcareous with depth.
- F2** Hard loam over dispersive brown clay (Hypercalcic, Brown Sodosol)
Medium thickness hard setting loamy sand to loam abruptly overlying a coarsely structured grey brown, yellow and red clay grading to soft carbonate.
- G3** Loamy sand over brown clay (Calcic, Brown Chromosol)
Thick loamy sand abruptly overlying a well structured brown and yellow clay, weakly calcareous at depth.

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

