

CCH Cutcutculier Hill Land System

Rises, with the occasional low hill or relatively low lying plain, overlain with carbonate sand deposits. Extensive areas are blanketed with low jumbled sand dunes, and calcreted areas with shallow soils commonly occur. The system is named after Cutcutculier Hill, which overlooks Formby Bay in Spencer Gulf.

Area: 106.8 km²

Landscape: The system consists of a series of rises, with the occasional low hill or relatively low lying plain or depression. The rises are mostly bedrock highs which are completely overlain by carbonate sand deposits. However, some rises are actual dune cores. In recent geological times these rises were covered by carbonate sands. Subsequent leaching lead to the formation of calcreted calcarenite cores. The carbonate sand has been greatly reworked by wind. Most areas have a relatively thick covering of carbonate sand, however, many patches have lost much of their sand cover, resulting in calcrete at shallow to very shallow depths. Soil depth can vary drastically over short distances - from deep to very shallow - due to the mobile nature of the carbonate sand and the presence of the underlying calcreted calcarenite core.

Annual rainfall: 435 – 480 mm average

Soils:

- H1** Carbonate sand (around 52% of area)
- B1** Shallow carbonate sand on calcrete (around 48% of area)

Main features: Soils range from very deep to very shallow over calcrete, with textures of fine loamy sand to light fine sandy loam. These soils are composed almost entirely of finely ground shell fragments. The main issues are the highly infertile nature of carbonate sand, wind erosion, stoniness and soil depth, and some water repellence. High carbonate levels reduce the availability of phosphorus, manganese, zinc and iron. Regular applications of manganese are needed for productive agriculture. Copper is also commonly deficient but can be corrected by occasional applications.

Sandy soils need adequate vegetative cover at all times to minimise the risk of wind erosion. Many deep sands occur, and on dunes these are semi arable at best due to infertility and wind erosion risk. A number of soils are too stony and shallow for cropping. There is a slight risk water erosion on some slopes. Minor saline seepage occurs as raised subsoil salinity levels in some lower lying areas. Water repellence in surface soils is not particularly common, probably due to the majority of soils having been deposited in quite recent times. A number of areas of native vegetation exist, so nature conservation is an issue.

Soil Landscape Unit summary: Cutcutculier Hill Land System (CCH)

In this land system report, soil landscape areas with a '1' as the fourth character of the label are deemed to be non arable. This may be due to deep sandy soils, stony soils, or such areas may just be covered with native vegetation.

SLU	% of area	Main features #
YAV	0.2	Land dominated by deep to moderate depth carbonate sand.
YAW	0.04	Main soils: carbonate sand (soil H1). With minor to common areas of shallow carbonate sand on calcrete (soil B1).
YAL	7.8	
YALa	1.5	<i>Depressions:</i>
YAI	19.7	



YAIa	2.3	<p>YAV – gently undulating depression areas (slopes 0-1.5%, 2-1r, 2-3a, 2s, 1y).</p> <p>YAW – depressions with some saline seepage (slopes <1%, 2-1w, 1-2r, 2a, 3-2s, 1y).</p> <p><i>Land with less than 30% jumbled low sand dunes:</i></p> <p>YAL – arable gently undulating rises and slopes with less than 30% jumbled low sand dunes (slopes 0-2.5%, 1-3r, 3-4a, 1-2s, 2-3y).</p> <p>YALa – semi arable near-coastal rise with less than 30% jumbled low sand dunes, but dominated by sand spreads (slopes 0-1.5%, 4-5a, 1-2r, 1-2s, 3-2y).</p> <p><i>Land with 30-60% jumbled low sand dunes:</i></p> <p>YAI – arable to semi arable gently undulating rises and raised plains overlain with 30-60% jumbled low to very low sand dunes (slopes 0-3%, approx. 2% non arable stony patches, 1-3r, 4-3a, 1-2s, 2-3y).</p> <p>YAIa – semi arable near-coastal rise overlain with 30-60% jumbled low sand dunes (slopes 0-3%, 1-3r, 4-5a, 1-2s, 3-2y).</p> <p>YAR – arable to semi arable relatively low lying plains overlain with 30-60% jumbled low sand dunes (slopes 0-2%, 1-2r, 3-4a, 2-1s, 1-2y).</p> <p><i>Land with 60-90% jumbled low sand dunes:</i></p> <p>YAE – semi arable rise to low hill overlain with 60-90% jumbled moderate height sand dunes (slopes 0-4.5%, 1-2r, 4-5a, 1s, 3-2y).</p> <p>YAF – arable to semi arable gently undulating rises overlain with 60-90% jumbled low sand dunes (slopes 0-2.5%, 1-2r, 4-5a, 1s, 2-3y).</p> <p>YAFa – semi arable rise to low hill overlain with 60-90% jumbled low sand dunes (slopes 0-4.5%, 1-2r, 5-4a, 1s, 3-2y).</p> <p>YAFz – arable to semi arable summit surface overlain with 60-90% jumbled low dunes (slopes 0-3.5%, 1-2r, 5-4a, 1s, 3y).</p> <p><i>Land with >90% jumbled dunes:</i></p> <p>YAB1 – non arable moderate height to high jumbled sand dunes (slopes 0-8%, 1r, 7-5a, 1s, 3-2y).</p> <p>YAC1 – non arable low jumbled sand dunes (slopes 0-2.5%, 1-2r, 5-4a, 1-2s, 2y).</p>	
YAR	0.5		
YAE	1.5		
YAF	7.7		
YAFa	0.8		
YAFz	0.1		
YAB1	3.9		
YAC1	2.9		
YEF	2.0		<p>Land dominated by deep to shallow carbonate sand.</p> <p>Main soils: moderate depth to deep carbonate sand (soil H1). And shallow carbonate sand on calcrete (soil B1).</p> <p>YEF – arable to semi arable rise with 60-90% low dune rises (slopes 0-3%, 2-4r, 3-4a, 1-2s, 2-3y).</p> <p>YEL – mostly arable gently rises and raised plains with <30% low dune rises (slopes 0-2.5%, 0-2% non arable stony areas, 2-4r, 3a, 1-2s, 2-3y).</p> <p>YEI – mostly arable gently undulating plains and rises with 30-60% low dune rises (slopes 0-1.5%, 2-4r, 3-4a, 1-2s, 2-1y).</p> <p>YEU – mostly arable relatively low lying gently undulating to level plains and low rises (0-1.5%, approx. 2-5% non arable stony areas, 3-2r, 3-2a, 2-1s, 1y).</p> <p>YEW – mostly arable depressions and low lying plains with some saline seepage (slopes <1%, 3-2r, 3-2s, 2a, 1y).</p>
YEL	14.8		
YEI	2.7		
YEU	3.9		
YEV	0.6		
YEW	0.4		
YaI1	7.8	<p>Land with very shallow to shallow carbonate sand.</p> <p>Main soils: very shallow to shallow carbonate sand on calcrete (soil B1). With minor areas of moderate depth to deep carbonate sand (soil H1).</p> <p>YaI1 – semi arable to non arable rises with approx. 30-60% low dune rises (non arable): with approx. 30-10% arable land in total (slopes 0-3%, 1-2e, 5-4r, 2-3a, 1-2s, 2-3y).</p> <p>YaB1 – non arable moderate height to low dune rises (slopes 0-5%, 1-2e, 5-4r, 2a, 1-2s, 2-3y): the deepest soils occur in sheltered patches, eg. the leeward side of near-coastal rises, especially on the eastern and north-eastern sides.</p> <p>YaL – semi arable low rises and slopes (slopes 0.5-2.5%, 1-2e, 4r, 2a, 1-2s, 2-1y).</p> <p>YaL1 – non arable low rises, raised plains, and plains (slopes 0-2.5%, 1-2e, 5-4r, 2-3a, 1-2s, 2y): larger areas with less than 30% low dune rises; or smaller areas which can encompass a low dune rise.</p> <p>YaU – semi arable relatively low lying plains (slopes 0-1%, 4r, 2a, 2-1s, 1y).</p> <p>YaU1 – non arable relatively low lying plains (slopes <1%, 5-4r, 2a, 2-1s, 2-1y).</p> <p>Yap1 – non arable slopes (slopes 1-5%, 2e, 5-4r, 2a, 2-1s, 2y).</p>	
YaB1	3.9		
YaL	0.7		
YaL1	5.2		
YaU	0.2		
YAU1	1.0		
Yap1	0.9		
YdA1	0.4		<p>Land with shallow, and some deeper, carbonate sand.</p> <p>Main soils: shallow carbonate sand on calcrete (soil B1). With areas of moderate depth to</p>
YdI	0.9		



YdI1	1.6	deep carbonate sand (soil H1).
YdL	2.3	YdA1 – non arable high dune rise (slopes 1-8%, 2e, 4r, 3a, 1s, 3y): deeper soils mostly occur on the leeward side (northeast side).
YdLx	0.4	YdI – semi arable gently undulating rise with 30-60% low dune rises (slopes 0-2.5%, 4-3r, 2-3a, 2-1s, 2-1y).
YdL1	1.9	YdI1 – non arable gently undulating to undulating rise with 30-60% low dune rises (slopes 0-3.5%, 1-2e, 4-3r, 3-2a, 1-2s, 2-3y).
YdLz	0.4	YdL – mostly arable to semi arable gently undulating land and slight slopes on rising land (slopes 0-1.5%, 3-4r, 2a, 1-2s, 2-1y).
YdU	2.3	YdLx – mostly arable to semi arable gently undulating rises (slopes 0-1.5%, 3-4r, 2-3a, 1-2s, 3-2y).
YdV	0.5	YdL1 – non arable to semi arable gently undulating plains, slight slopes, or dune rises on rising land (slopes 0-2%, 4r, 2-3a, 1-2s, 2y).
YdW	0.1	YdLz – non arable gently undulating plains and slight slopes on hilltops and exposed rise surfaces (slopes 0-2%, 4-3r, 3-2a, 1s, 3-2y).
		YdU – mostly arable relatively low lying gently undulating plains (0-1.5%, approx. 5% non arable stony areas, 3-4r, 2a, 2-1s, 1-2y).
		YdV – semi arable gently undulating depression areas (slopes 0-1.5%, 4-3r, 2a, 2s, 1y).
		YdW – depressions with some saline seepage (slopes <1%, 2-1w, 2-4r, 2a, 3-2s, 1y).

Classes in the 'Soil Landscape Unit summary' table (eg. 2-1e, 3w, 2y, etc) describe the predominant soil and land conditions, and their range, found in Soil Landscape Units. The number '1' reflects minimal limitation, while increasing numbers reflect increasing limitation. Letters correspond to the type of attribute:

a - wind erosion	e - water erosion	f - flooding	g - gullyng
r - surface rockiness	s - salinity	w - waterlogging	y - exposure

Detailed soil profile descriptions:

Soils:

H1 Carbonate sand [Shelly Calcarosol]

Loose grey brown fine loamy sand to light fine sandy loam, composed of finely divided shell fragments, overlying calcreted calcarenite at moderate depth or more. Grey organic stained topsoils overlie light coloured subsoils (very pale brown to pale brown). Found on dunes, slopes, rises, plains, and in some low lying areas.

B1 Shallow carbonate sand on calcrete

[Petrocalcic Shelly Calcarosol, or sometimes Petrocalcic Supravescent Calcarosol]
Loose to powdery, grey brown fine loamy sand to light fine sandy loam, dominantly composed of finely divided shell fragments, overlying calcreted calcarenite at shallow or very shallow depth. Many of these soils are too stony and shallow to be cropped. Found on slopes, rises, plains, and on relict low dune rises.

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

