CRL Caroline Land System

Area: 203.7 km²

Landscape: Dunefield either side of Gambier land system with linear to irregular low dunes and

sand plains with deep leached sands and patches of rises with shallow soils over

calcarenite.

Annual rainfall: 745 – 780 mm average

Geology: Holocene Molineaux Sand overlies calcarenite rises of the Bridgewater Formation and

flats, which are underlain by Pleistocene lacustrine deposits of the Padthaway and

Coomandook Formations.

Main soils: I1 (39%) Highly leached sand (Aeric Podosol)

H3 (20%) Bleached siliceous sand (sandy Bleached Tenosol)

12 (20%) Wet highly leached sand (Aquic or Semi-Aquic Podosol)

Minor soils: The following comprise 20% but contribute only 2 - 6% each

G2 Bleached sand over sandy clay loam (sandy Brown-Red Chromosol)

B7 Shallow sand over clay on calcrete (sandy Petrocalcic Sodosol-Chromosol)

B3 Shallow sandy loam on calcrete (Petrocalcic Red Tenosol-Kandosol-Rudosol)

G5 Sand over acidic clay (sandy Brown Kurosol)

N3 Wet soil (Sodosolic-Calcarosolic-Dermosolic Hydrosol)

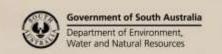
Summary: Sand plains and dunes with soils of generally low fertility and tendency to acidity, with

mostly low buffering capacity (will change pH easily). Wet conditions result from high rainfall and impermeable subsoil conditions. Volcanic ash influence is seen in dark brown surface horizons especially close to the boundary with the Gambier land

system.

Soil Landscape Unit summary: Caroline Land System (CRL)

SLU	% of area	Component	Main soils	Prop#	Notes
MOB	0.2	Rise	В6	D	Gently undulating rises with shallow sandy loam
		Dune	11H3	M	(sometimes ironstone gravelly) grading to red-brown sandy clay loam or clay over calcreted calcarenite. <10% deep, leached sands. Main soils:
					Rises: Shallow sandy loam over red-brown clay on calcrete - B6.
					Dunes: Highly leached sand - 11 and Bleached siliceous sand - H3.
MRB	0.4	Rise	G3	D	Gently undulating rises with deep sand over clay rises.
					Main soils: <u>Thick sand over clay</u> - G3 .
OFB	12.2	Dune	H3I1	٧	OFB Deep moderately to highly leached siliceous sands on
		Stony range	B3B6	L	high dunes, 10-20% shallow loamy sand, often over red-
OFC	20.4	Dune	11	D	brown sandy clay loam/clay on calcreted calcarenite.
OFD	21.6	Low dune	11	D	OFC As above, dunes, highly leached siliceous sands OFD As above, low dunes. Main soils:
					Dunes: <u>Bleached siliceous sand</u> - H3 and <u>Highly leached</u> <u>sand</u> - I1 .





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					Stony ranges: Shallow sandy loam on calcrete - B3 and
0.7.0		_		_	Shallow sandy loam over red-brown clay on calcrete - B6.
OLD	0.4	Dune	H3I1	D	OLD Low dunes with moderately deep to shallow,
OLJ	0.2	Dune	H3I1	Е	bleached acid to neutral sand over calcarenite.
		Swale	G3B6	Е	OLJ As above, 60-90% dunes with swales, which have sand
					over poorly structured clay soils.
					Main soils:
					Dunes: Bleached siliceous sand - H3 and Highly leached
					sand - II.
					Swales: Thick sand over clay - G3 and Shallow sandy loam
OMD	1.0	D	11.00		over red-brown clay on calcrete - B6 .
	1.0	Dune	11G3	D	Low dunes as above but also with shallow bleached sands
OMJ	1.6	Dune	11	E	over calcarenite and sand over poorly structured clay in
		Swale	G3	Е	swales.
					OMD >90% Low dunes
					OMJ 60-90% low dunes. Main soils:
					Dunes: Highly leached sand - 11 and Thick sand over clay -
					G3.
					Swales: Thick sand over clay - G3.
OND	1.6	Dune	H3	V	Low dunes with deep neutral to acid sands on dunes with
OND	1.0	Rise	B6H3	C	20-30% shallow sandy loam over red-brown clay loam/clay
		KISC	DOLIO		on calcarenite.
					Main soils:
					Dunes: Bleached siliceous sand - H3 .
					Rises: Shallow sandy loam over red-brown clay on calcrete
					- B6 and <u>Bleached siliceous sand</u> - H3 .
PBA	13.3	Plain	11	D	PBA Sand plain with well-drained, deep leached siliceous
PBB	2.5	Plain	11	V	sands.
		Rise	G2I1	С	PBB As above, but with 20-30% poorly drained, deep sands
					which are underlain by impervious clays or coffee rock.
					Main soils:
					Plains: Highly leached sand - 11.
					Rises: Bleached sand over sandy clay loam - G2 and Highly
					<u>leached sand</u> - 11.
PEA	22.7	Flat	12H3	V	Sand plains.
		Swamp	N3I2	L	PEA Poorly drained plain with deep siliceous acid sands
PEB	0.8	Plain	12	D	with coffee rock or slowly permeable clays in the subsoils.
		Swamp	N1N3	М	10-20% non-peaty swamps.
			12		PEB as above, <10% swamps, some peaty. Some loam
PEE	0.3	Depression	12H3	D	over poorly structured clay in some flats.
PEi	0.3	Flat	12H3	V	PEE Depression with poorly drained acid siliceous sand soils
		Swamp	N3I2	L	as above.
					PEi As for PEA above, with 20-30% non-peaty swamps.
					Main soils:
					Flats and depressions: Wet highly leached sand - 12 and
					Bleached siliceous sand - H3. Swamps: Posty soil N1 Wet clay learn N3 and Wet
					Swamps: Peaty soil – N1, Wet clay loam - N3 and Wet
PPA	0.5	Plain	G2G5	D	highly leached sand - 12. Plain with acid sand over acid yellow-brown clay soils and
117	0.5	FIGIT	12	٦	deep acid poorly drained sands with coffee rock on
			'		subsoils.
					Main soils:
					Bleached sand over sandy clay loam - G2 , Sand over
					acidic clay - G5 and Wet highly leached sand - 12 .
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PROPORTION codes assigned to Soil Landscape Unit (SLU) components:

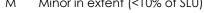
D Dominant in extent (>90% of SLU)

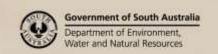
٧ Very extensive in extent (60–90% of SLU)

Е Extensive in extent (30–60% of SLU) С Common in extent (20–30% of SLU)

L Limited in extent (10–20% of SLU)

Μ Minor in extent (<10% of SLU)







Detailed soil profile descriptions:

B3 Shallow sandy loam on calcrete (Petrocalcic Rudosol)

Medium thickness non calcareous sandy loam, often having a slight clay increase with depth, over calcreted calcarenite shallower than 50 cm - rises.

Shallow sandy loam over red-brown clay on calcrete (Petrocalcic, Red Kandosol)

Medium thickness sandy loam with slight ironstone gravel overlying a weakly structured reddish brown sandy clay on calcarenite within 50 cm - rises.

G2 Bleached sand over sandy clay loam (sandy Brown-Red Chromosol)

Sandy texture contrast soil with a bleached A2 and a friable brown-red sandy clay loam to sandy loam subsoil.

G3 Thick sand over clay (Hypercalcic, Brown Sodosol/ Chromosol)

Thick bleached sand with an organically darkened surface abruptly overlying a massive to coarsely structured brown to reddish yellow sandy clay to clay, calcareous with depth - rises.

G5 <u>Sand over acidic clay (Sandy Brown Kurosol)</u>

Sandy texture contrast soil with a friable brown strongly acidic clayey to clay loamy subsoil. Very acidic soil; incipient Bh horizons; moderate depth topsoils. Some with ironstone.

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

Grey sand over very thick bleached sand grading to yellow sand continuing below 100 cm.

Highly leached sand (Fragic, Pipey, Aeric Podosol)

Grey sand with a very thick bleached A2 layer, over dark brown and yellow massive soft to semi-hard clayey sand (coffee rock), grading to softer yellow and brown sand to sandy clay loam from about 80 cm.

Wet highly leached sand (Fragic, Humic, Aquic Podosol)

Grey sand with a thick bleached A2 horizon, overlying a thin to thick layer of coffee rock, grading to pale brown sand sharply overlying a grey, brown and yellow mottled sandy clay loam to light clay.

N1 Peat (Organosol)

Peaty soil

N3 Seasonally waterlogged, non to marginally saline equivalents of soils listed above, viz.:

N3c Wet G3 N3d Wet B5 N3e Wet B7

Further information: <u>DEWNR Soil and Land Program</u>

