# KON Kongorong Land System

**Area:** 207.9 km$^2$

**Landscape:** Stranded beach ridge land system extending north-west from near Kongorong to west of Millicent.

**Annual rainfall:** 735 – 780 mm average

**Geology:** Calcreted calcarenite of the Pleistocene Bridgewater Formation on ridges, with Pleistocene lagoonal deposits of the Padthaway Formation on flats on the landward edge.

**Main soils:**
**B3** (28%) Shallow sandy loam on calcrete (Petrocalcic Red Tenosol-Kandosol-Rudosol)
**B6** (26%) Shallow loam over red-brown clay on calcrete (Petrocalcic Red Chromosol-Kandosol)

**Minor soils:**
**RR** (13%) Rock or exposed calcrete.
**G3** (8%) Thick sand over clay (sandy Brown-Red Chromosol-Sodosol)
**I1** (7%) Highly leached sand (Aeric Podosol)
**B1** (5%) Shallow highly calcareous sandy loam on calcrete (Supravescent-Shelly Petrocalcic Calcarosol-Rudosol)

**Summary:** Shallow soils are mostly well drained and can be ripped to provide deeper root-zone depth for deep-rooted species. Much of the land is used for grazing or forestry.

**Soil Landscape Unit summary:** Kongorong Land System (KON)

| SLU | % of area | Component | Main soils | Prop# | Notes |
|---|---|---|---|---|---|
| MAB | 0.8 | Rise | B3RR | D | Calcreted former beach ridges with stony, very shallow red and brown loam, occasionally over red clay, on calcrete. >50% bare calcrete.<br>**MAB** Gently undulating ridges.<br>**MAC** Undulating ridges.<br><br>Main soils: Shallow sandy loam on calcrete - **B3** and Rock or exposed calcrete – **RR**. |
| MAC | 0.2 | Rise | B3RR | D | |
| M-B | 0.7 | Stony rise | B3RR | V | As above but <50% bare calcrete.<br>**M-B** Gently undulating rises<br>**M-C** Undulating rises.<br>**M-D** Rolling rises or low hills<br><br>Main soils:<br>***Rises:*** Shallow sandy loam on calcrete - **B3** and Rock or exposed calcrete – **RR**.<br>***Swales:*** Sand over friable brown clay on calcrete - **B7** and Shallow sandy loam over red-brown clay on calcrete - **B6**. |
| | | Swale | B7B6 | L | |
| M-C | 4.4 | Rise | RRB3 | D | |
| M-D | 32.5 | Rise | B3RR | V | |
| | | Swale | B6 | L | |
| MCA | 5.0 | Plain | B6B3B8 | D | Plain with shallow red sandy loam, often on sandy clay loam or bleached sand on calcreted calcarenite. |

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| | | | | | Main soils: Shallow sandy loam over red-brown clay on calcrete - **B6**, Shallow sandy loam on calcrete - **B3** and Shallow sand on calcrete - **B8**. |
| MEA | 1.1 | Plain | B3 | D | Calcreted former beach ridges, dunes and plains with shallow sand on calcrete soils. 10-20% dunes with deep, water repellent, acid bleached siliceous sands.<br><br>**MEA** Plain with shallow red sandy loam over red sandy clay loam on calcreted calcarenite<br>**MEAA** As above with low stony rises and <10% low sand dunes.<br>**MEB** Gently undulating calcreted former beach ridge with shallow sandy loam over red or brown clay soils.<br><br>Main soils:<br>***Plains:*** Shallow sandy loam on calcrete - **B3**, Shallow sandy loam over red-brown clay on calcrete - **B6** and Sand over friable brown clay on calcrete - **B7**.<br>***Rises:*** Shallow sandy loam on calcrete - **B3** and Shallow sandy loam over red-brown clay on calcrete - **B6**.<br>***Dunes:*** Highly leached sand - **I1**, Bleached siliceous sand - **H3**.<br>***Depressions:*** Shallow sandy loam over red-brown clay on calcrete - **B6** and Shallow sandy loam on calcrete - **B3**. |
| MEAA | 12.4 | Plain | B3 | V | |
| | | Stony rise | B3 | L | |
| | | Dune | I1H3 | M | |
| MEB | 2.4 | Rise | B6B3 | V | |
| | | Plain | B6B7 | C | |
| MGK | 0.9 | Plain | RRB3B6 | V | Calcreted former beach ridges with < 50% bare calcrete Mainly Hydrosols & shallow Tenosols in low parts of calcreted landscapes with Brown and grey Sodosols.<br>**MGK** Poorly drained plain with 20-30% wet swale/depressions. Soils are shallow loam or loam over poorly structured clay.<br>**MGL** As above, gently undulating topography.<br>**MGX** Depression with 20-30% swamps with loam over poorly structured clay.<br><br>Main soils:<br>***Plains and rises:*** Shallow sandy loam over red-brown clay on calcrete - **B6**, Shallow sandy loam on calcrete - **B3**, Shallow calcareous loam on calcrete - **B2** and Rock or exposed calcrete – **RR**.<br>***Swales:*** Shallow sandy loam over red-brown clay on calcrete - **B6** and Sand over friable brown clay on calcrete - **B7**.<br>***Swamps:*** Wet clay loam - **N3**. |
| | | Swale | B6B7 | C | |
| MGL | 0.1 | Rise | RRB3B6 | V | |
| | | Swale | B6B7 | C | |
| MGX | 0.1 | Plain | B3B2 | V | |
| | | Swamp | N3 | C | |
| MOB | 11.6 | Rise | B6H2 | V | Gently undulating calcreted former beach ridge with shallow sandy loam over red or brown clay soils.<br><br>Main soils:<br>***Rises:*** Shallow sandy loam over red-brown clay on calcrete - **B6** and Deep brown sand - **H2**.<br>***Plains:*** Thick sand over clay - **G3**, Bleached siliceous sand - **H3** and Wet highly leached sand - **I2**. |
| | | Plain | G3H3I2 | L | |
| MRB | 1.2 | Rise | G3B6 | V | Rises with texture contrast and gradational, moderately shallow to very shallow, reddish sandy loam to clay loam, mostly over friable, well structured red-brown clay, on calcreted calcarenite.<br><br>**MRB** Gently undulating calcreted former beach ridge with shallow sand and loam over red-brown clay soils. 10-20% |
| | | Swale | G3B6B7 | L | |
| | | Swamp | N3I2 | M | |
| MRC | 17.8 | Rise | G3B6I1 | D | |
| | | Swale | I2H3B7 | M | |

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| | | | | | swales, as above soils, often with poorly structured clay subsoils. Slopes are 1-3%, relief is less than 30m.<br>**MRC** As above undulating topography, < 10% deep leached sand or sand/clay rises. Relief: less than 30m, slopes: 3-10%.<br><br>Main soils:<br>***Rises:*** Thick sand over clay - **G3**, Shallow sandy loam over red-brown clay on calcrete - **B6** and Highly leached sand - **I1**.<br>***Swales:*** Thick sand over clay - **G3**, Shallow sandy loam over red-brown clay on calcrete - **B6**, Sand over friable brown clay on calcrete - **B7**, Bleached siliceous sand - **H3** and Wet highly leached sand - **I2**.<br>***Swamps:*** Wet clay loam - **N3,** Wet highly leached sand - **I2**. |
| MUA | 0.6 | Plain | B3B7 | V | Mainly shallow calcareous Rudosols, Calcarosols and Tenosols on calcreted, aeolianite with shallow calcareous Rudosols and dark brown Tenosols. Less than 50% bare calcrete. Typically shallow, dark brown sandy loam over calcrete, often with thin dark brown clay loam subsoil; and deep shelly calcareous sands.<br><br>**MUA** Plain with shallow, dark brown sandy loam over calcreted calcarenite, often with brown clay loam subsoil.<br>**MULA** As above, gently undulating with low dune forms with 10% swampy swales.<br><br>Main soils:<br>***Plains:*** Shallow sandy loam on calcrete - **B3** and Sand over friable brown clay on calcrete - **B7**.<br>***Stony rises:*** Shallow sandy loam on calcrete - **B3** and Rock or exposed calcrete – **RR**.<br>***Rises:*** Shallow sandy loam on calcrete - **B3** and Shallow highly calcareous sandy loam on calcrete – **B1**.<br>***Swamps:*** Wet clay loam - **N3**, Peaty soil – **N1** and Shallow sandy loam on calcrete - **B3**. |
| | | Stony rise | B3RR | L | |
| MULA | 3.9 | Rise | B3B1 | D | |
| | | Swamp | N3N1B3 | M | |
| MXV | 1.2 | Rise | RRB3 | V | Undulating rises with 20-30% swampy depressions. Bare calcrete and shallow sandy loam over red clay loam on rises and peaty soils in wet swales.<br><br>Main soils:<br>***Rises:*** Shallow sandy loam on calcrete - **B3** and Rock or exposed calcrete – **RR**.<br>***Swamps:*** Wet clay loam - **N3** and Peaty soil – **N1**. |
| | | Swamp | N3N1 | C | |
| mUA | 0.2 | Plain | B3 | D | Rises and plains associated with calcreted Miocene limestone materials.Calcreted Gambier Limestone (Tmg). Usually old marine plain, uniquely in the southeast. Less than 50% bare calcrete. Soils are mainly shallow calcareous Rudosols, Calcarosols and Tenosols on calcreted, aeolianite with shallow calcareous Rudosols and dark brown Tenosols.<br><br>**mUA** Plain with very dark brown sandy loam on brown sandy clay loam over Miocene limestone.<br>**mUEK** As above depression with sinkholes/karst features.<br><br>Main soils: Shallow sandy loam on calcrete - **B3**. |
| mUEK | 0.0 | Depression | B3 | D | |
| NJA | 0.1 | Plain | B5B2A7 | D | Plains and gentle slopes of inter-dune corridors (on lagoonal sediments/marl/marine clay/sediments) e.g. Padthaway Formation. Mainly Dermosols· Deep (>50cm) grey or dark |
| | | Swamp | N3N1B2 | M | |
| NJF | 0.1 | Plain | C5 | V | |

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| | | Swamp | N3N1 | L | clayey Dermosols on calcreted marl or limestone with moderately deep clayey Calcarosols with moderately deep Vertosols, Hydrosols and Organosols (swamps) & Dark fine-sandy to clay loamy over dark clay Sodosols.<br><br>**NJA** plain with deep dark clay soils on calcreted marl or limestone often calcareous throughout.<br>**NJF** As above, 10-20% swamps.<br><br>Main soils:<br>***Plains:*** Shallow dark clay loam on limestone - **B5**, Shallow calcareous loam on calcrete - **B2**, Gradational dark clay loam – **C5** and Calcareous clay loam on marl - **A7**.<br>***Swamps:*** Wet clay loam - **N3** and Peaty soil – **N1**. |
| NxI | 1.8 | Plain | B5B2 | V | Inter-dune corridor plain on lagoonal sediments/marl/marine clay/sediments) e.g. Padthaway Formation. Soils are mainly Calcarosols with shallow Dermosols & Organosols.<br><br>Main soils:<br>***Plains:*** Shallow dark clay loam on limestone - **B5** and Shallow calcareous loam on calcrete - **B2**.<br>***Swamps:*** Wet clay loam - **N3**, Peaty soil – **N1** and Deep friable gradational clay loam - **M2**. |
| | | Swamp | N3N1M2 | C | |
| NYF | 0.1 | Plain | C5 | V | Inter-dune corridor plain on lagoonal sediments. Soils are mainly Dermosols shallow (<50cm) grey or black Dermosols/Vertosols with shallow Dermosols, Organosols and Calcarosols with dermosolic and calcarosolic Hydrosols. Plain with shallow dark cracking clay soils on calcreted marl or limestone. 20-30% swamps.<br><br>Main soils:<br>***Plains:*** Gradational dark clay loam – **C5**.<br>***Swamps:*** Peaty soil – **N1** and Gradational dark clay loam – **C5**. |
| | | Swamp | N1C5 | C | |
| XtC | 0.5 | Swamp | N1 | D | Alkaline peaty swamps with Organosols (especially coastal).<br><br>**XtC** Alkaline peaty swamps. Used for intensive cropping when drained. Peat depth varies.<br>**Xtf** Swamps with stony rises or shallow over calcrete.<br><br>Main soils:<br>***Swamps:*** Peaty soil – **N1**, Wet clay loam - **N3** and Shallow dark clay loam on limestone - **B5**.<br>***Rises:*** Shallow calcareous loam on calcrete - **B2** and Shallow loam on calcrete - **B3**. |
| Xtf | 0.2 | Swamp | B5N3 | V | |
| | | Rise | B2B3 | C | |
| Xuf | 0.1 | Swamp | N3N1 | D | Non-peaty swamps with stony rises or shallow over calcrete.<br><br>Main soils:<br>***Swamps:*** Wet clay loam - **N3** and Peaty soil – **N1**.<br>***Stony rises:*** Shallow loam on calcrete - **B3**. |
| | | Stony rise | B3 | M | |

# 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)

**Detailed soil profile descriptions:**

**A7** Calcareous clay loam on marl (Marly Calcarosol)
Dark calcareous clay with a marly subsoil (often saline in Upper SE). Often with shells and a peaty surface.

**B1** Shallow highly calcareous sandy loam on calcrete (Supravescent-Shelly Petrocalcic Calcarosol-Rudosol)
Shallow, carbonate dominant sandy to loamy soil on calcrete. Carbonate dominates the soil profile as a whole, however, the surface soil may not be carbonate dominant, but needs to contain at least 30% carbonate.

**B2** Shallow calcareous sandy loam on calcrete (Petrocalcic Calcarosol)
Up to 40 cm calcareous loamy sand to sandy loam with variable calcrete rubble overlying calcreted calcarenite - rises.

**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.

**B5** Shallow dark clay loam on limestone (Petrocalcic, Black Dermosol)
Black clay loam to light clay over calcreted limestone at shallow depth, grading to highly calcareous clay - flats.

**B6** 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.

**B7** Shallow sand over sandy clay on calcrete (Petrocalcic, Brown Chromosol)
Medium thickness sand overlying brown friable sandy clay to clay on limestone or calcreted sandy clay within 50 cm - flats.

**B8** Shallow sand on calcrete (Petrocalcic, Bleached-Leptic Tenosol)
Thick bleached sand over calcreted calcarenite within 50 cm - rises.

**C5** Gradational dark clay loam (Calcic-Hypercalcic Brown-Grey-Black Dermosol-Calcarosol)
Dark clay loam over abundant 'soft lime'. >10% carbonate is the cut off between this and M2 soils.

**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.

**H2** Siliceous sand (Sandy Calcarosol-Tenosol)
Deep to moderate depth calcareous siliceous sand. Often with non-calcareous topsoil; can be non calcareous throughout. Sometimes the subsoil is a light sandy loam.

**H3** Deep bleached sand (Basic, Arenic, Bleached-Orthic Tenosol)
Grey sand over a very thick bleached sand grading to yellow sand continuing below 100 cm.

**I1** 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.

**I2** 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.

**M2** Deep friable gradational clay loam (Red-Brown-Grey- Black Dermosol)
Deep well structured red clay loamy soil.

**N1** Peat (Organosol)
Peaty soil.

**N3** Seasonally waterlogged, non-to-marginally saline equivalents of associated soils listed above, viz.:
- **N3c** Wet **G3**
- **N3d** Wet **B5**
- **N3e** Wet **B7**

**RR** Bare rock

**Further information:** DEWNR Soil and Land Program