

# WYR Wyrie Land System

**Area:** 137 km<sup>2</sup>

**Landscape:** Coastal swamps and sub-coastal lagoonal deposits in the lower South East. The swamps are alkaline and many peats contain shell fragments as well as fibrous plant debris.

**Annual rainfall:** 700 - 800 mm average

**Geology:** Pleistocene Padthaway Formation lacustrine deposits and Holocene Saint Kilda Formation swamp deposits.

**Main soils:**

- C5** (24%) Gradational dark clay loam (Calcic-Hypercalcic Brown-Grey-Black Dermosol-Calcarosol on marl)
- N1** (23%) Peaty soil (Organosol)
- A6** (20%) Gradational calcareous clay loam (grey clay-loamy pedal Hypercalcic-Lithocalcic Calcarosol with clayey subsoil on marl)
- N3** (15%) Wet soil (non to moderately saline) (Sodosolic-Calcarosolic-Dermosolic Hydrosol)

**Minor soils:** (Collectively 13%, 2 - 4% each)

- M2** Deep friable gradational clay loam (Red-Brown-Grey- Black Dermosol)
- I2** Highly leached sand (Aeric Podosol)
- B3** Shallow sandy loam on calcrete (Petrocalcic Red Tenosol-Kandosol-Rudosol)
- B5** Shallow dark clay loam on limestone (Petrocalcic Black-Grey Dermosol)
- B2** Shallow calcareous loam on calcrete (Petrocalcic Calcarosol-Rudosol)

**Summary:** The land system is generally of low relief with swampy groundwater discharge areas. Some large former lagoonal deposits near Millicent are used for cropping after being drained. Swamp soils may be shallow or deep.

## Soil Landscape Unit summary: Wyrie Land System (WYR)

| SLU | % of area | Component  | Main soils | Prop# | Notes  |
|-----|-----------|------------|------------|-------|--|
| M-B | 0.6       | Stony rise | B3RR       | V     | Calcreted stranded beach ridges with shallow soils. Non-arable, >50% outcrop. Deeper sand over clay and shallow sandy red soils on calcrete in swales.   |
|     |           | Swale      | B7B6       | L     |  |
| M-C | 0.1       | Rise       | RRB3       | D     | <p><b>M-B</b> Gently undulating ridges.</p> <p><b>M-C</b> Shallow undulating calcreted stranded beach ridges. Non-arable, &gt;50% outcrop.</p> <p>Main soils:</p> <p><b>Stony Rises:</b> <u>Shallow sandy loam on calcrete - B3</u> and <u>Rock or exposed calcrete - RR</u>.</p> <p><b>Swales:</b> <u>Sand over friable brown clay on calcrete - B7</u> and <u>Shallow sandy loam over red-brown clay on calcrete - B6</u>.</p> |
| mUA | 0.2       | Plain      | B3         | D     | <p>Plain with shallow, either calcareous, or non-calcareous dark brown, sandy loams over calcreted Miocene Gambier limestone.</p> <p>Main soils: <u>Shallow sandy loam on calcrete - B3</u>.</p>   |
| NJA | 0.9       | Plain      | B5A7       | D     | Deep (>50cm) dark or grey clayey soils with calcrete at depth. Soils may be calcareous throughout.   |
|     |           | Swamp      | N3N1       | M     |  |



|     |      |               |            |   |   |
|-----|------|---------------|------------|---|---|
| NJF | 4.5  | Plain         | C5         | V | <p><b>NJA</b> &lt;10% swamps.<br/><b>NJF</b> 10-20% swamps.</p> <p>Main soils:<br/><b>Plains:</b> <u>Shallow dark clay loam on limestone</u> - <b>B5</b>, <u>Gradational dark clay loam</u> - <b>C5</b> and <u>Calcareous clay loam on marl</u> - <b>A7</b>.<br/><b>Swamps:</b> <u>Wet clay loam</u> - <b>N3</b> and <u>Peaty soil</u> - <b>N1</b>.</p>   |
|     |      | Swamp         | N3N1       | L |   |
| NKA | 31.4 | Plain         | C5A7       | D | <p>Plains with deep, dark, sometimes calcareous, clay loams with much carbonate at depth. Old lagoonal deposit. Extensively cropped with legumes and brassicas.</p> <p>Main soils: <u>Gradational dark clay loam</u> - <b>C5</b> and <u>Calcareous clay loam on marl</u> - <b>A7</b>.</p>   |
| NQA | 14.9 | Plain         | A7C5       | D | <p>Plains with deep, dark, usually calcareous, clay loams with much carbonate at depth. Lagoonal deposit. Extensively cropped. Seasonally wet if not artificially drained.</p> <p>Main soils: <u>Calcareous clay loam on marl</u> - <b>A7</b> and <u>Gradational dark clay loam</u> - <b>C5</b>.</p>  |
| VbA | 0.6  | Plain         | B7         | D | <p>Shallow coastal plain with flinty sand over poorly structured clay on limestone.</p> <p>Main soils: <u>Sand over friable brown clay on calcrete</u> - <b>B7</b>.</p>   |
| VcW | 0.1  | Plain         | B4N3       | D | <p>Shallow coastal plain with shallow flinty red sandy loam over calcrete. Rock outcrop on rises.</p> <p>Main soils:<br/><b>Plains:</b> <u>Shallow red loam on limestone</u> - <b>B4</b> and <u>Wet clay loam</u> - <b>N3</b>.<br/><b>Rises:</b> <u>Shallow sandy loam on calcrete</u> - <b>B3</b> and <u>Rock or exposed calcrete</u> - <b>RR</b>.</p>   |
|     |      | Rise          | B3RR       | M |   |
| VdA | 0.5  | Plain         | B7         | D | <p>Shallow coastal plain with sand over poorly structured clay on limestone with wet, non-peaty swamps.</p> <p>Main soils: <u>Sand over friable brown clay on calcrete</u> - <b>B7</b>.</p>   |
| WEJ | 0.3  | Dune          | H1H2       | E | <p>Coastal dunes, beaches &amp; sand spreads. Calcareous siliceous sand dunes with 5-15m relief. &gt;10% flats. Vegetated.</p> <p>Main soils:<br/><b>Beaches:</b> <u>Shell sand</u> - <b>H1</b> and <u>Deep brown sand</u> - <b>H2</b>.<br/><b>Stony plains:</b> <u>Shallow sandy loam on calcrete</u> - <b>B3</b> and <u>Shallow highly calcareous sandy loam on calcrete</u> - <b>B1</b><br/><b>Swamps:</b> <u>Wet clay loam</u> - <b>N3</b> and <u>Wet saline clay loam</u> - <b>N2c</b>.</p>  |
|     |      | Stony plain   | B3B1       | E |   |
|     |      | Swamp         | N2         | C |   |
| WNs | 0.1  | Flat          | H1H2<br>B3 | V | <p>Coastal, moderately saline (5s) swamps. Non-productive.</p> <p>Main soils:<br/><b>Coastal flats:</b> <u>Shell sand</u> - <b>H1</b>, <u>Deep brown sand</u> - <b>H2</b> and <u>Shallow sandy loam on calcrete</u> - <b>B3</b>.<br/><b>Swamps:</b> <u>Wet saline clay loam</u> - <b>N2c</b>.</p>   |
|     |      | Swamp         | N2         | L |   |
| WOr | 0.6  | Flat          | H1H2<br>B3 | V | <p>Coastal Swamps (&gt;50% samphire/Melaleuca flats).</p> <p><b>WOr</b> Mostly moderately saline (4-5s) swamps<br/><b>WOs</b> Mixed non-saline (1-3s) and moderately saline (4-5s) swamps.</p> <p>Main soils:<br/><b>Flats:</b> <u>Shell sand</u> - <b>H1</b>, <u>Deep brown sand</u> - <b>H2</b> and <u>Shallow sandy loam on calcrete</u> - <b>B3</b>.<br/><b>Swamps:</b> <u>Wet saline clay loam</u> - <b>N2c</b>.<br/><b>Dunes:</b> <u>Shell sand</u> - <b>H1</b> and <u>Deep brown sand</u> - <b>H2</b>.<br/><b>Stony rises:</b> <u>Shallow calcareous loam on calcrete</u> - <b>B2</b>.</p> |
|     |      | Swamp         | N2         | C |   |
|     |      | Dune          | H1H2       | M |   |
|     |      | Stony rise    | B2         | M |   |
| WOs | 1.2  | Samphire flat | N2N3       | V | <p>Main soils:<br/><b>Flats:</b> <u>Shell sand</u> - <b>H1</b>, <u>Deep brown sand</u> - <b>H2</b> and <u>Shallow sandy loam on calcrete</u> - <b>B3</b>.<br/><b>Swamps:</b> <u>Wet saline clay loam</u> - <b>N2c</b>.<br/><b>Dunes:</b> <u>Shell sand</u> - <b>H1</b> and <u>Deep brown sand</u> - <b>H2</b>.<br/><b>Stony rises:</b> <u>Shallow calcareous loam on calcrete</u> - <b>B2</b>.</p>  |
|     |      | Stony flat    | B2N2       | C |   |
|     |      | Swamp         | N2         | M |   |
| Xc- | 1.0  | Lunette       | B2B3       | D | <p>Lunettes adjacent to swamps with calcareous loam soils.</p> <p>Main soils: <u>Shallow calcareous loam on calcrete</u> - <b>B2</b> and <u>Shallow sandy loam on calcrete</u> - <b>B3</b>.</p>   |



|     |      |            |      |   |  |
|-----|------|------------|------|---|--|
| Xta | 0.1  | Swamp      | N1   | V | Lagoonal deposits with alkaline peaty swamps   |
|     |      | Rise       | I2   | C |  |
| XtA | 5.9  | Plain      | N3   | D | Xta with sandy rises<br>XtA lagoonal/lake deposit  |
| Xtc | 1.1  | Swamp      | B5N3 | V | Xtc lagoon deposit with stony rises or shallow over calcrete.<br>Smaller alkaline peaty swamps   |
|     |      | Rise       | B2B3 | L |  |
| XtC | 15.5 | Swamp      | N1   | D | XtC Alkaline peaty swamps. Used for intensive cropping when drained.   |
| Xtd | 5.5  | Swamp      | N1   | V | Peat depth varies.<br>Xtd As above, with up to 30% sandy rises.  |
|     |      | Rise       | I2   | C |  |
| Xtf | 3.6  | Swamp      | B5N3 | V | Xtf Swamps with stony rises or shallow over calcrete.<br>Xtn Swamps with mixed stony and sandy rises.  |
|     |      | Rise       | B2B3 | C |  |
| Xtn | 11.0 | Swamp      | N1   | V | Main soils:<br><b>Swamps:</b> <u>Peaty soil – N1, Shallow dark clay loam on limestone – B5</u> and <u>Wet clay loam – N3</u> .<br><b>Plains:</b> <u>Wet clay loam – N3</u> .<br><b>Sandy rises:</b> <u>Wet highly leached sand – I2</u> .<br><b>Stony rises:</b> <u>Shallow calcareous loam on calcrete – B2</u> . |
|     |      | Stony rise | B2B3 | L |  |
|     |      | Sandy rise | I2   | L |  |
| Xuf | 0.2  | Swamp      | N3N1 | D | Non-peaty swamps with stony rises or shallow over calcrete.<br>Main soils:<br><b>Swamps:</b> <u>Wet clay loam – N3</u> and <u>Peaty soil – N1</u> .<br><b>Stony rises:</b> <u>Shallow sandy loam on calcrete – B3</u> .  |
|     |      | Stony rise | B3   | M |  |

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

- |   |  |   |                                   |
|---|--|---|-----------------------------------|
| 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:

- 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 (Supravесcent-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.
- B4** Red sandy loam over calcrete (Petrocalcic, Red Dermosol)  
Medium thickness red sandy loam grading to friable red clay loam over calcreted calcarenite within 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.
- 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.
- H1** Shell sand (Shelly Rudosol)  
Very thick shell sand with no profile development other than slight organic darkening at the surface.
- 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.
- 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.
- N1** Peat (Organosol)

*Peaty soil*

- N2c** Wet saline clay loam (Dermosolic, Salic Hydrosol)  
Medium thickness dark grey to black clay loam to clay grading to a well structured dark grey clay with minor carbonates and a water table within 100 cm.
- N3** Seasonally waterlogged, non to marginally saline equivalents of soils listed above, viz.:
- N3d** Wet **B5**
- N3e** Wet **B7**
- RR** Bare rock

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

