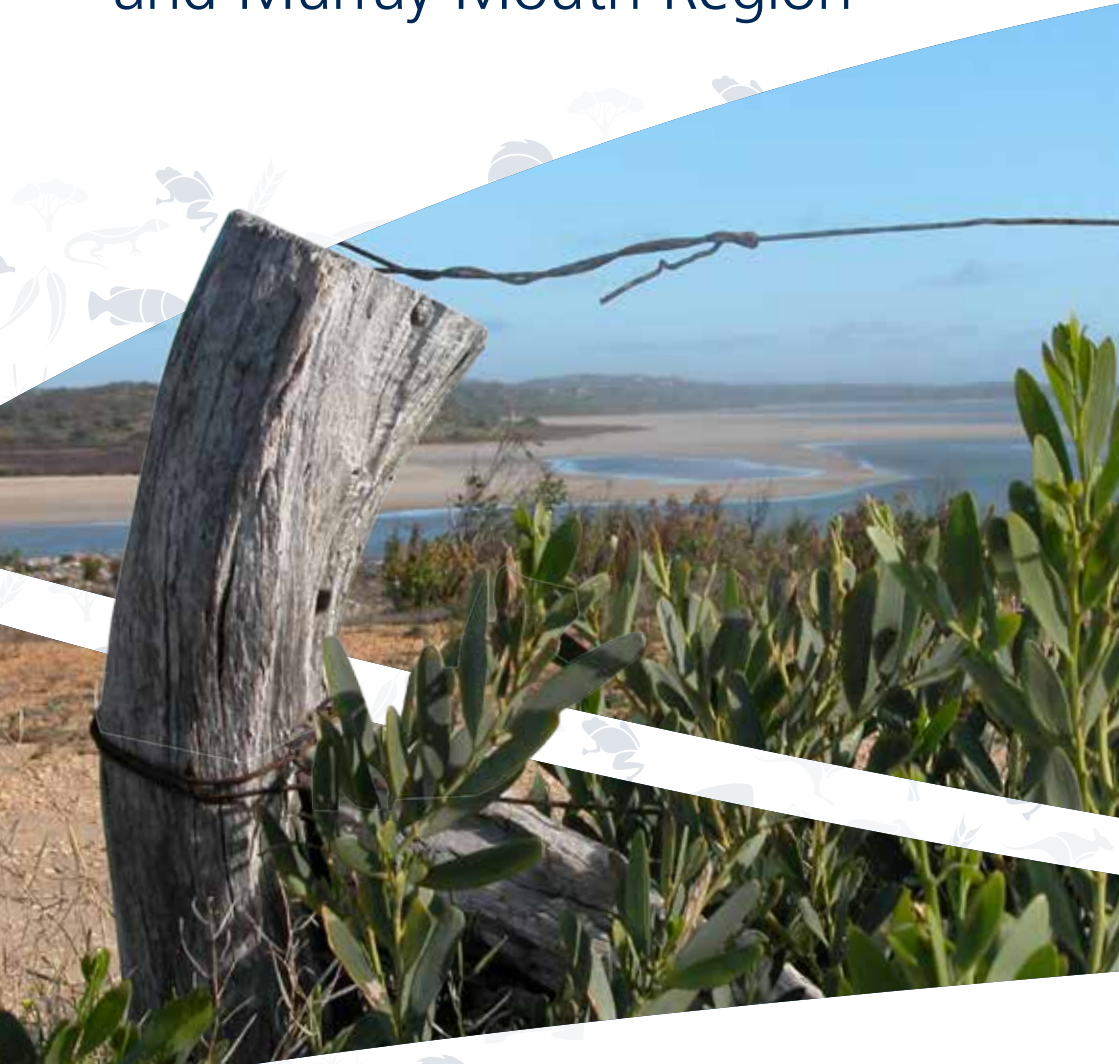


A guide to restoring vegetation in the Coorong, Lower Lakes and Murray Mouth Region



Government
of South Australia



Australian Government

Acknowledgements

This guide was developed by the Coorong, Lower Lakes and Murray Mouth (CLLMM) Recovery Project Vegetation Program. The CLLMM Recovery Project (2011-16) is a \$137 million investment by the South Australian Government's *Murray Futures* program and the Australian Government to enhance the resilience of this Ramsar listed wetland. The Vegetation Program was delivered through a partnership between the Australian and South Australian governments, local community groups and the Ngarrindjeri Regional Authority. The priority vegetation communities identified in this guide, and the species lists associated with these communities were developed to fulfil the goals of the Vegetation Program. Specifically these were increasing resilience and habitat connectivity in the region. This guide should be used with that in mind.

We would like to thank the individuals who provided the expert opinion contained in this guide: Tim Croft, Kerri Muller, Susan Gehrig, Janet Pedler, Ben Simon, Will Miles, Terry Sim, Ann Prescott and Hafiz Stewart. Thank you also to the Ngarrindjeri and local landholders who allowed us access to their properties. Dr Ross Meffin, Hafiz Stewart and Blair Kavanagh provided valuable comments on the initial drafts of this document, while staff at the Science, Monitoring and Knowledge branch, particularly Dr Nigel Willoughby, undertook the initial analysis to describe vegetation communities described here. Blair Kavanagh produced the maps and Dr Tim Croft reviewed the vegetation communities and the plant species obtained within them.

Contents

Background	2	Vegetation community descriptions	22
How this guide was developed	4	1. <i>Eucalyptus fasciculosa</i> (Pink Gum)	
Soil types.....	4	Woodland	22
Management landscapes	4	2. <i>Eucalyptus cosmophylla</i> (Cup Gum)	
Vegetation communities	5	and <i>E. baxteri</i> (Brown Stringy Bark)	
Priority vegetation communities.....	5	Woodland Over Heath.....	26
Species lists	5	3. Coastal Shrubland	30
How to use this guide	6	4. <i>Eucalyptus diversifolia</i> ssp. <i>diversifolia</i>	
Where are you within the region?	8	(Coastal White Mallee) Mallee	34
Landform element descriptions	9	5. <i>Allocasuarina verticillata</i> (Drooping	
Soil types	10	Sheoak) Low Woodland	38
Vegetation communities	12	6. Mixed Eucalypt Woodland / Mallee	
Key to the CLLMM vegetation		Communities.....	42
communities	16	7. Freshwater Fringing Wetland	57
Coastal Dunes	16	8. <i>Duma florulenta</i> (Lignum) Shrubland ..	58
South East.....	17	9. Samphire Swamp (including <i>Melaleuca</i>	
Mount Lofty Ranges.....	18	<i>halmaturorum</i> Swamp, <i>Duma florulenta</i>	
Lower Lakes Terrestrial	20	Low Shrubland and <i>Gahnia filum</i>	
		Sedgeland).....	62
		10. Expert Opinion Based Vegetation	
		Communities.....	66
		References	80

Background

Located in South Australia at the terminus of the Murray River, the Coorong, Lower Lakes and Murray Mouth (CLLMM) region has immense ecological, economic and cultural importance. From 2011 to 2016, the CLLMM Recovery Project Vegetation Program undertook landscape scale restoration within a 5 km buffer of the Lower Lakes and Coorong (page 3). The project aimed to restore ecological character and build resilience in the region's ecosystems and communities.

This guide was initially developed to direct the Vegetation Program's revegetation activities, but is also a valuable resource for others undertaking revegetation in the CLLMM region. While the Vegetation Program undertook both terrestrial and wetland revegetation activities, this guide focusses on the terrestrial aspect of the program.

The vegetation communities presented in this guide are based on a landscape scale assessment of the region. By identifying vegetation communities that are a priority to restore, we can make the best use of time and resources when undertaking revegetation.

However, when assessing individual sites, it can often be difficult to accurately identify the vegetation community that occurred there in the past. Even if native vegetation remains at a site, it may be difficult to determine if it is a true representation of the historical vegetation community, especially if the site has previously been revegetated. It is also possible for multiple communities to co-occur, which can further complicate the planning process.

While to some extent it may be necessary to make informed guesses when planning revegetation at a site, simple field assessments can be used to underpin these decisions. This guide provides a framework, in the form of an easy-to-use key, which can be used to direct field assessments and revegetation activities at sites in the CLLMM region.

It should be noted that this guide does not take into account how anthropogenic impacts (e.g. livestock grazing, ground compaction, etc.), climate change or habitat fragmentation may influence future trajectories of degraded remnant and revegetated habitats. This would require a much better understanding of the vegetation communities in question, and further research is necessary if we want to adequately restore the structure and functionality of highly degraded areas and those subject to ongoing disturbance.



How this guide was developed

The management landscapes, vegetation communities and species lists identified in this guide were defined during a landscape assessment. This assessment was informed by available datasets (such as soil mapping and biological survey data), as well as field assessments and expert opinion.

Soil types

Environmental factors drive the distribution and composition of vegetation communities. Within the CLLMM landscape, soil type is thought to largely determine where vegetation communities are found. The CLLMM region has undergone detailed soil mapping, and as such, soil types form the foundation for the vegetation communities defined in this guide.

On page 10 and 11 we provide a brief description of the soils most commonly found in the region. Further details can be found in *The Soils of Southern South Australia* by Hall *et al.* (2009).

Management landscapes

Management landscapes are areas within the CLLMM region with distinct soils (see map on page 13) and were developed to reduce the complexity of the region for restoration purposes. These were determined by identifying geographic regions across the CLLMM region with similar soil subgroups (Hall *et al.* 2009) and soil land systems (DWLBC Soil and Land Program 2007).

Four CLLMM management landscapes were identified:

- 1. Coastal Dunes**
- 2. South East**
- 3. Mount Lofty Ranges**
- 4. Lower Lakes Terrestrial**

The Lower Lakes Terrestrial management landscape contains one sub-region (A) and the Mount Lofty Ranges management landscape contains four sub-regions (B to E, page 8). These sub-regions are designed to help differentiate vegetation communities in these management landscapes.

Vegetation communities

A landscape assessment of the CLLMM region (Bonifacio *et al.* 2016) was undertaken to define vegetation communities and their underlying environmental setting. This was done by using existing biological survey data from the Biological Database of South Australia (BDBSA) and soil mapping.

The landscape assessment quantitatively identified twelve vegetation communities and another four were identified with the assistance of expert knowledge.

Full descriptions of each vegetation community can be found on pages 12 - 13, with a stylised diagram showing where they are likely to be found in the CLLMM landscape on pages 14 - 15.

Priority vegetation communities

The landscape assessment (Bonifacio *et al.* 2016) also identified priority vegetation communities for conservation and restoration, using birds as an indicator of biodiversity declines. Birds were selected as an indicator species since they are easily detectable and data was readily available across the region.

Bird species associated with each vegetation community were identified, and their status and population trends were used to determine the conservation priority of each vegetation community.

Of the 16 vegetation communities, six were identified as priorities for habitat restoration and revegetation (Bonifacio *et al.* 2016).

These were:

- *Eucalyptus fasciculosa* (Pink Gum) Woodland (1)
- *E. porosa* (Mallee Box) Grassy Woodland (6.1)
- *E. odorata* (Peppermint Box) Grassy Woodland (6.2)
- *E. leucoxylon* (South Australian Blue Gum) Woodland (6.4)
- Samphire Swamp (9) and
- Non-Eucalypt (*Allocasuarina verticillata* and *Callitris gracilis*) Woodland (10.4)

Species lists

For each of the vegetation communities described in this guide, plant species and their planting densities were obtained from field surveys, or where this was not possible, expert opinion. The species lists provide an indication of the suite of species that can be found in each vegetation community and can act as a starting point when planning revegetation.

How to use this guide

This guide consists of four easy steps to help practitioners develop a species list for a revegetation site within the CLLMM region.

STEP 1. Select your CLLMM management landscape (page 8)

STEP 2. Select your landscape elements and soil type (pages 9-11)

STEP 3. Select your vegetation community (pages 12-21)

STEP 4. Select your species (pages 22-78)

The species lists provide an indication of the suite of species that can be found in each vegetation community. Not all of these species are appropriate for revegetation. Rather they represent the species in a remnant system. Species should be selected from these lists when planning revegetation to achieve an overall composition and density that is appropriate for the site and revegetation program.

The Vegetation Program used species from these lists to guide our revegetation activities using tubestock seedlings, and densities were set to account for plant mortalities. The proposed species and densities were not designed to guide direct seeding activities, although they could be adapted for this use.

It is expected people using this guide will have at least an intermediate knowledge of the plant communities occurring in the CLLMM region, and an ability to differentiate between soil types and landforms. As an aid, brief descriptions of the landforms (page 9) and soil types (pages 10-11) referred to in this guide are provided.

While other tools, such as pre-European vegetation and soil mapping, may provide coarse-scale information for a revegetation site, an on-ground assessment is necessary to accurately determine what vegetation community should be planted.

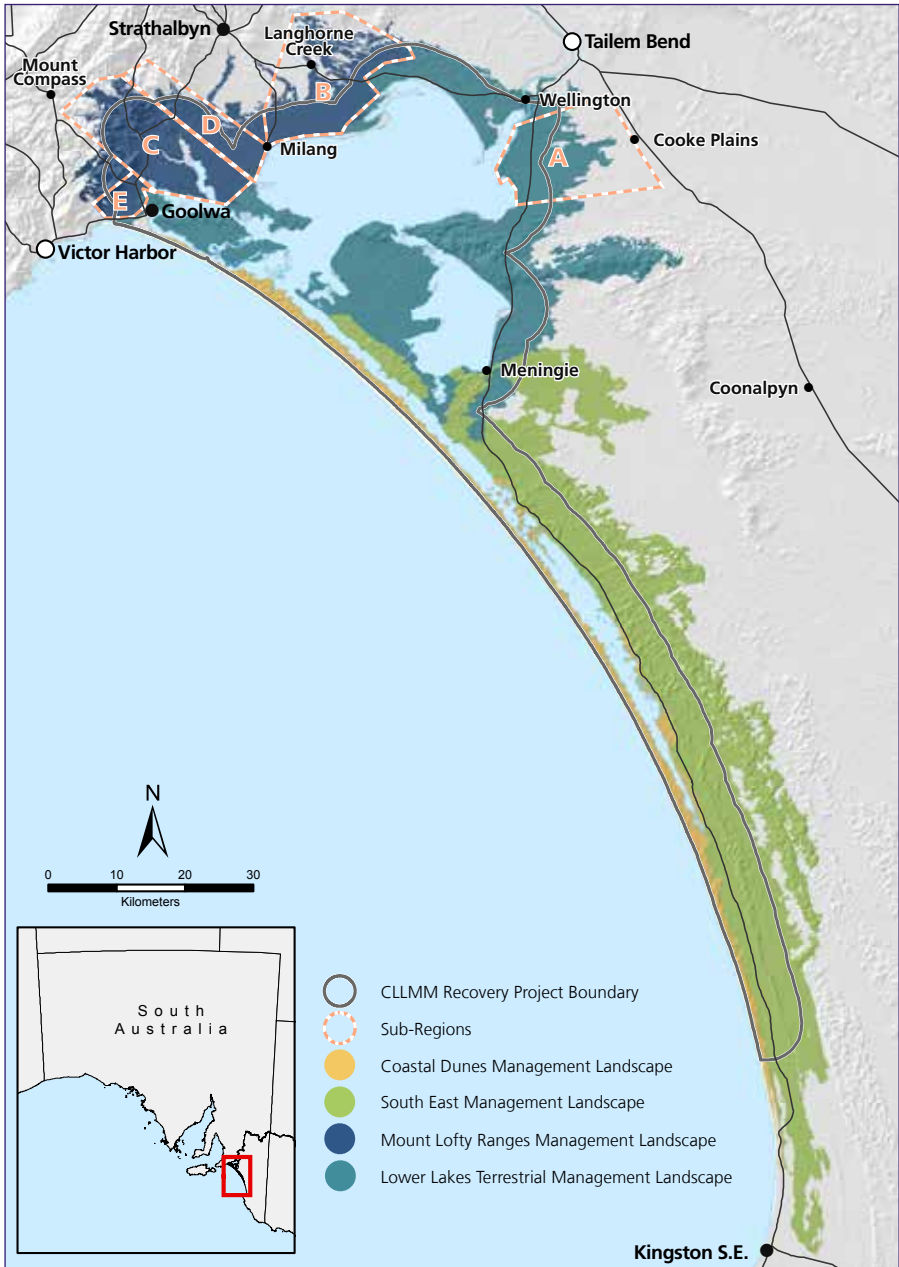
This is especially true if a number of different landforms and soil types (e.g. sand dune, swale or saline area) occur in a relatively small area. To make revegetation planning simpler it is recommended that areas are broadly mapped as a single vegetation community rather than creating multiple small patches that each contain a different vegetation community.

To a degree this requires those undertaking revegetation to use common sense when revegetating an area, such as by planting species which prefer slightly wetter habitats in depressions and species tolerant of drier soils on higher ground.



Tubestock seedlings ready to be planted

Where are you within the region?



Landform element descriptions

The below definitions are based on McDonald *et al.* (1998) and are the main landform elements commonly found in the CLLMM region.

Crest

A landform element that stands above all, or almost all, points in the adjacent terrain. It is characteristically smoothly convex.

Hillock

Compound landform element comprising of a narrow crest and short adjoining slopes, the crest length being less than the width of the landform element.

Ridge

Similar to a hillock with the crest length being greater than the width of the landform element.

Simple Slope

Slope element adjacent below a crest or flat and adjacent above a flat or depression.

Upper Slope

Slope element adjacent below a crest or flat but not adjacent above a flat or depression.

Mid Slope

Slope element not adjacent below a crest or flat and not adjacent above a flat or depression.

Lower Slope

Slope element not adjacent below a crest or flat but adjacent above a flat or depression.

Flat

Planar landform element that is neither a crest nor a depression and is level or very gently inclined.

Dune

Moderately inclined to very steep ridge or hillock built up by wind. This element may comprise Dunecrest and Duneslope

Open Depression (vale) / Closed Depression

A concave landform element standing below all, or almost all, points in the adjacent terrain. A closed depression stands below all such points; an open depression extends at the same elevation, or lower, beyond the locality where it is observed.

Soil types

Definitions are based on Hall *et al.* (2009) and are a summary of the dominant soil types found in the CLLMM region.

B2 soils have a grey to red-brown loamy sand to light clay, but most commonly loamy, usually shallow to very shallow layer. B2 soils are mostly situated on level to gently undulating plains but can occur on rises and low hills, and are often associated with dunefields, old coastal dune ranges and coastal sand spreads. B2 soils are common in higher rainfall environments.

B3 soils are shallow (0-9cm) brown to red sandy loam to light clay over a hard base of calcrete (approx. 20cm depth). As with B2 soils, B3 soils are mostly situated on level to gently undulating plains but can occur on rises and low hills, and are often associated with dunefields, old coastal dune ranges and coastal sand spreads. B3 soils are common in higher rainfall environments.

B6 soils are shallow, red-brown loam or clay loam over calcrete. Found in old coastal dunes or on flat to undulating land.

B8 soils are shallow, pale brown sand over calcrete. Found in coastal and near coastal flats, rises and dunes.

D3 soils have a dark reddish brown sandy loam layer in the first 10cm overlaying yellow red clay loam.

F1 soils are loam over brown or dark clay. They are commonly found in the Mt Lofty Ranges on plains and rises. The top 20-30cm are made up of dark loam soil and below that the soil is yellowish brown to light grey clay.

D2 soils are reddish brown loams over red clay and located on valley floors and gentle slopes of the Mt Lofty Ranges.

D3 soils are dark reddish brown loams over poorly structured red clay and located on similar landforms to D2 soils.





G4 soils have a dark greyish loamy sand layer in the first 8cm, below which is a brown loamy sand (25cm) and then a shallow yellowish red to yellowish brown clay layer (below 25cm).













G5 soils are made up of sands over acidic clay. The first 20-40cm in this layer are made up of dark grey to pale brown loamy sand, below which is yellowish brown sandy clay loam. Found in high rainfall areas of the Mt Lofty Ranges.

- H1** soils are made up of carbonate sand and usually make up coastal sand dunes along the coastline. Coastal dune found further inland are also made up of this soil type.
- H3** soils, which are closely associated with G3 soils, are deep with the first 8cm containing dark brown loose sands followed by a bleached subsurface layer (very pale brown, 8-35cm deep). Below this the soil is a brownish yellow colour.
- K3** soils have an acidic sandy loam structure over red clay. They are common in the Mt Lofty Ranges on hillsides. The first 20-30cm are made up of a dark greyish brown sandy loam below which is red to yellowish brown heavy clay.
- N2** soils are highly to extremely saline affected by shallow saline water tables and range from deep clays to sand-over-clays to deep sands. N2 soils occur where saline groundwater comes close to the land surface (approx. 1m) with poor to very poor drainage. They are associated with tidal flats, swamps, closed depressions and drainage depressions.
- N3** soils are affected by prolonged wetness but are not peaty or highly to extremely saline. N3 soils are situated in low-lying and poorly to very poorly drained areas, mostly in high rainfall areas.

Vegetation communities

Vegetation communities identified in the CLLMM region along with the soil types and management landscapes they are associated with.

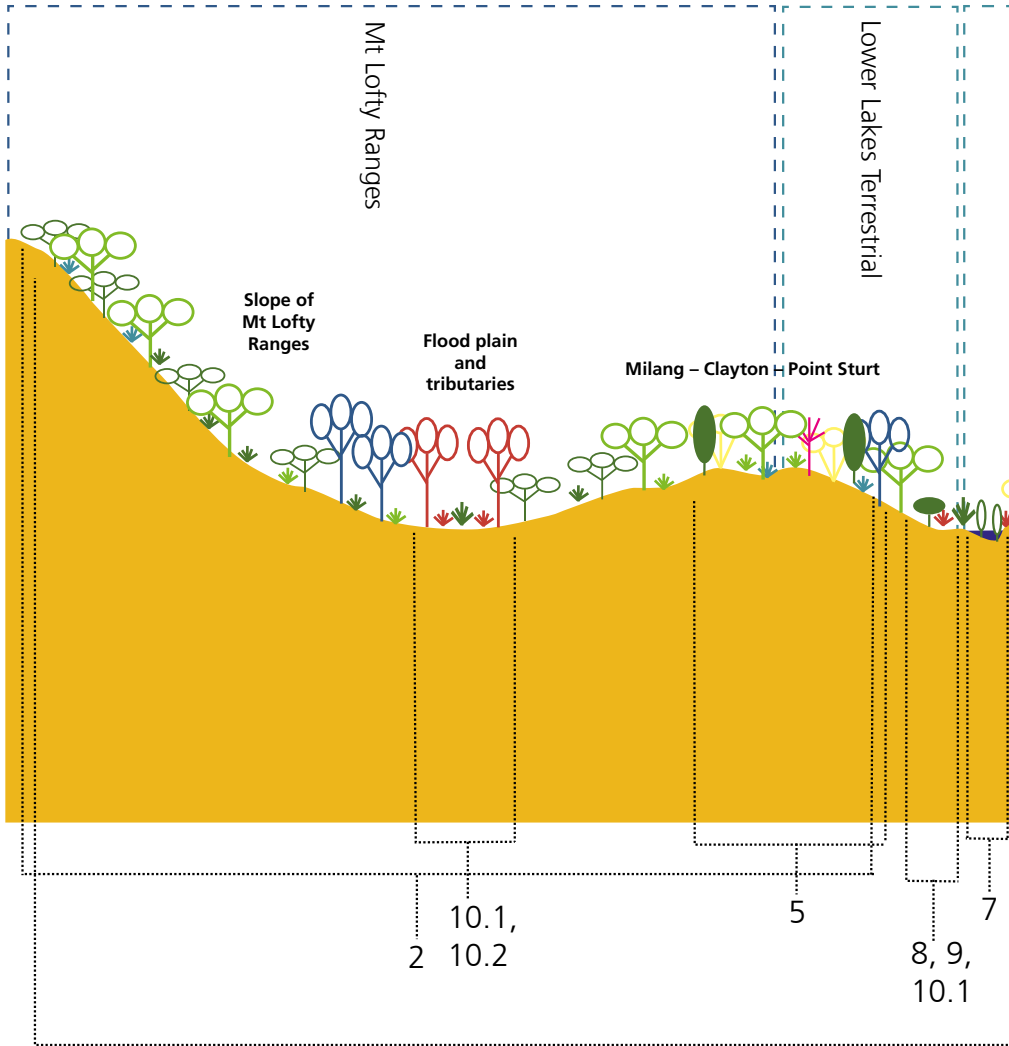
-  Coastal Dunes Management Landscape
-  South East Management Landscape
-  Mt Lofty Ranges Management Landscape
-  Lower Lakes Terrestrial Management Landscape

Vegetation communities	Dominant soil types	Management Landscape
1. <i>Eucalyptus fasciculosa</i> (Pink Gum) Woodland*	Sand over clay (G3, G4) Sand (H3)	
2. <i>Eucalyptus cosmophylla</i> (Cup Gum) and <i>E. baxteri</i> (Brown Stringy Bark) Woodland Over Heath	Sand over clay (G3, G5) Acidic loams (K3) Loam over clay (D2, D3, D5)	
3. Coastal Shrubland	Sands (H1, H3) Shallow loam over calcrete (B3)	
4. <i>Eucalyptus diversifolia</i> ssp. <i>diversifolia</i> (Coastal White Mallee) Mallee	Shallow loam over calcrete (B2, B3) Sands (H1, H3) Sand over clay (G3, G5)	   
5. <i>Allocasuarina verticillata</i> (Drooping Sheoak) Low Woodland	Shallow loam over calcrete (B3) Shallow sand over calcrete (B8) Sand over clay (G3) Sand (H3) Saline Wet Soils (N2)	 
6. Mixed Eucalypt Woodland / Mallee Communities		
6.1 <i>Eucalyptus porosa</i> (Mallee Box) Grassy Woodland*	Loam over clay (D3) Shallow loam over calcrete (B3, B2)	 
6.2 <i>Eucalyptus odorata</i> (Peppermint Box) Grassy Woodland*	Sand over clay (G4) Loam over clay (D3)	

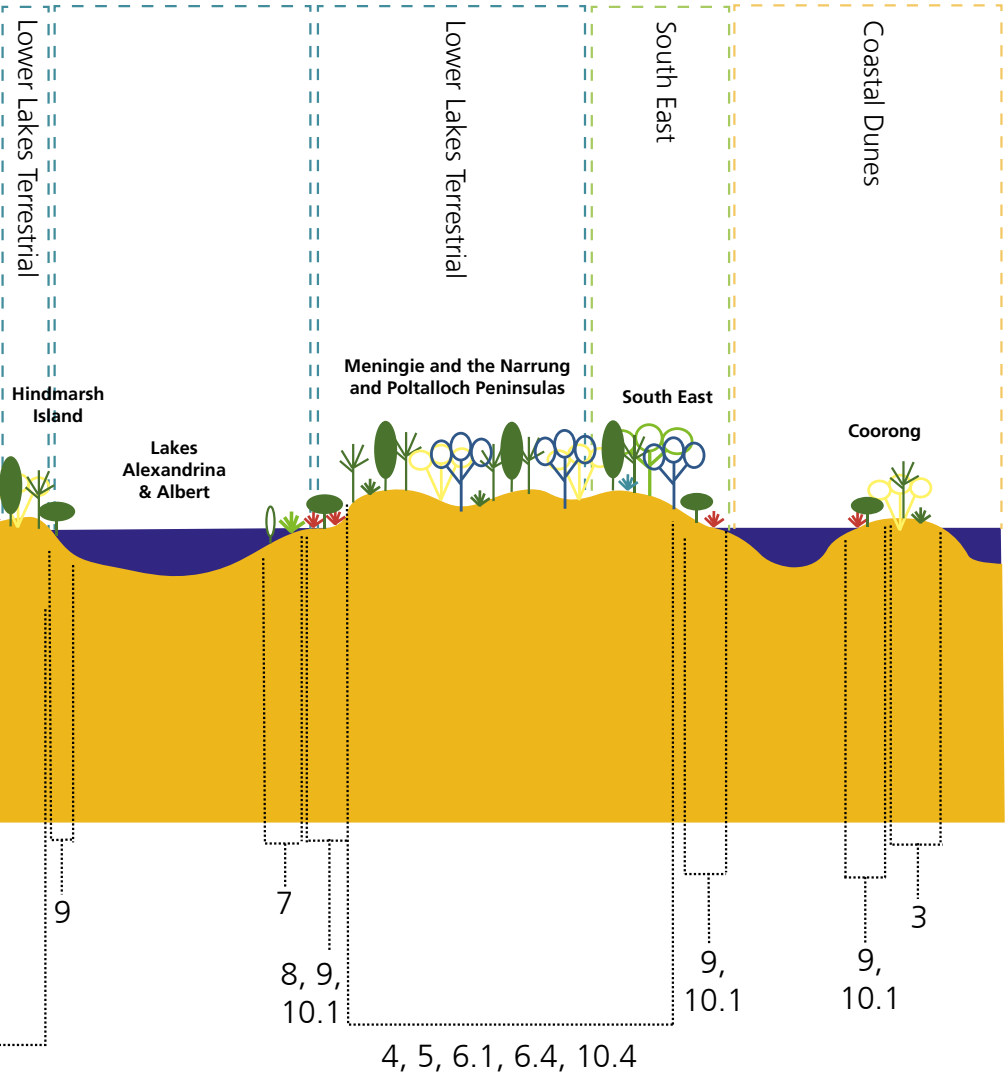
Vegetation communities	Dominant soil types	Management Landscape
6.3 <i>Eucalyptus incrassata</i> (Ridge-Fruited Mallee) / <i>E. leptophylla</i> (Narrow Leafed Red Mallee) +/- <i>E. socialis</i> (Beaked Red Mallee) Mallee	Sand over loamy clay (G1) Sand over clay (G3) Bleached siliceous sands (H3)	
6.4 <i>Eucalyptus leucoxylon</i> (South Australian Blue Gum) Woodland*	Sand over clay (G3) Shallow loam over calcrete (B3, B6) Shallow sand over calcrete (B8)	 
7. Freshwater Fringing Wetland	Saline soils (N2) Wet soils (N3)	
8. <i>Duma florulenta</i> (Lignum) Shrubland	Wet soils (N3) Loam over poorly structured clay (D3) Shallow loam over calcrete (B3) Deep loams (F1)	 
9. Samphire Swamp* (including <i>Melaleuca halmaturorum</i> Swamp, <i>Duma florulenta</i> Low Shrubland and <i>Gahnia filum</i> Sedgeland)	Saline soils (N2)	   
10. Expert Opinion Based Vegetation Communities		
10.1 <i>Gahnia filum</i> (Chaffy Saw-sedge) Sedgeland	Wet soils (N3)	   
10.2 <i>Eucalyptus camaldulensis</i> ssp. <i>camaldulensis</i> (River Red Gum) Grassy Woodland	Wet soils (N3)	
10.3 Grasslands		
10.4 Non-Eucalypt (<i>Allocasuarina verticillata</i> and <i>Callitris gracilis</i>) Woodland*	Sandy loam over calcrete (B3)	 

* refers to priority vegetation communities for restoration and revegetation.

Cross section of the management landscapes and vegetation communities identified in the CLLMM region



Note: Numbers refer to vegetation communities listed on Page 12 - 13



Key to the CLLMM vegetation communities

Coastal Dunes ●

1. Are you in a depression or on the flats with saline or moderately saline soils (N2 & N3)?



Yes

Samphire Swamp (page 62)
(N2 saline soils) **or**

Chaffy Saw-sedge Sedgeland (page 66)
(N3 moderately saline wet soils)



No

Go to Question 2



2. Are you on a sand dune?

Yes

Coastal Shrubland (page 30)

No

Coastal White Mallee (page 34)
(rises with B2, B3 shallow sand or loam over calcrete)

South East

3. Are you in a depression or on the flats with saline or moderately saline soils (N2 & N3)?



Yes

Samphire Swamp (page 62)
(N2 saline soils) or

Chaffy Saw-sedge Sedgeland (page 66)
(N3 moderately saline wet soils)



No

Go to Question 4



4. Are you on a ridge with siliceous sand (H3) or sandy loam on calcrete (B3 & B8) soils?

Yes

Drooping Sheoak Low Woodland
(page 38) or

Non-Eucalypt Woodland (page 76)



No

Go to Question 5



5. Are the soils sand (H1 & H3) or sand over acidic clay (G5)?

Yes

Drooping Sheoak Low Woodland
(page 38) or

Non-Eucalypt Woodland (page 76)



No

Go to Question 6



6. Are you on flat land or a lower slope with sandy loam or sand on calcrete soils (B3, B6 & B8) or thick sand over clay soils (G3)?

Yes

SA Blue Gum Woodland (page 54) or
Coastal White Mallee (page 34)

No

Either **Coastal White Mallee** (page 34),
Drooping Sheoak Low Woodland (page 38) or **Non-Eucalypt Woodland** (page 76)

Mount Lofty Ranges ●

7. Are you in a depression or on the flats with saline soils (N2) or wet soils (N3)?



Yes

Samphire Swamp (page 62)
(N2 saline soils) **or**

Chaffy Saw-sedge Sedgeland (page 66)
(N3 moderately saline wet soils)



No

Go to Question 8



8. Are the soils fresh or slightly saline (N3) in a depression or on the flats?

Yes

River Red Gum Grassy Woodland
(page 70)

Lignum Shrubland (page 58)

No

Go to Question 9



9. Are you on loam or sandy loam soil over calcrete or clay (B2, B3, D2, D3)?

Yes

Go to Question 10



No

Go to Question 11

10. Are you on a lower or mid slope?

Yes

Peppermint Box Grassy Woodland
(page 46)
(may also occur on sand over clay)

No

Mallee Box Grassy Woodland (page 42)
(can occur on flats to dune areas **or**
SA Blue Gum Woodland near
Scott Conservation Park (page 54)

11. Are you between Milang and Ferris-McDonald on sand over clay soils or deep sandy soils (G and H soils) (B on page 8)?

Yes

Go to Question 12



No

Go to Question 14

12. Are you on a flat to lower slope?



Yes

Mixed Mallee (page 50) or
Coastal White Mallee (page 34) near
Ferries-McDonald



No

Go to Question 13



13. Are you on a mid to upper slope?

Yes

**Cup Gum and Brown Stringy Bark
Woodland** (page 26)
Pink Gum Woodland (page 22) or
Coastal White Mallee (page 34)

No

Coastal White Mallee (page 34)

14. Are you between Currency Creek and Finniss, extending up to
Scott and Cox Scrub CP and down to Clayton Bay (C on page 8)?

Yes

Go to Question 15

No

Go to Question 17

15. Are you on a low to lower to mid slope with sand over
clay soils or deep sandy soils (G and H soils)?

Yes

Pink Gum Woodland (page 22) +/-
Mixed Mallee (page 50)
on flat ground or lower slopes

No

Go to Question 16



16. Are you on a mid to upper slope with sand over clay soils or deep
sandy soils (G and H soils) or loamy/acidic
sand over red clay (D5/K3)?

Yes

**Cup Gum and Brown Stringy Bark
Woodland** (page 26) or
Coastal White Mallee (page 34)

No

Coastal White Mallee (page 34)

17. Are you between Milang and Cox Scrub mid to upper slope or around
the Goolwa area on sand over clay soils or deep sandy soils
(G and H soils) on a lower to mid slope slope (D & E on page 8)?

Yes

Pink Gum Woodland (page 22)

No

**Cup Gum and Brown Stringy Bark
Woodland** (not around the Goolwa area
(page 26)

23. Are the soils loam or sandy loam over clay (D2, D3)?

Yes

Go to Question 24



No

Coastal White Mallee (page 34) +/-
Drooping Sheoak Low Woodland
(page 38) (soils sand over clay, sand on
calcrete or deep carbonate sand)

24. Are you on a mid to upper slope?

Yes

**Cup Gum and Brown Stringy
Bark Woodland** (page 26) +/-
Pink Gum Woodland (page 22) or
Coastal White Mallee (page 34) near
Ferries-McDonald

No

Coastal White Mallee (page 34) near
Ferries-McDonald

Ridge-Fruited Mallee (E. incrassata) on sunset



Vegetation community descriptions

This section contains the vegetation communities found in the CLLMM region, along with an explanation of the landscapes they are likely to be found in and the soil subgroups they are associated with.

For each, a map is provided showing where the vegetation community is likely to occur based on soil subgroups. Species associated with each vegetation community are also included, along with their structure (overstorey, midstorey and understorey), suggested planting density (plants per hectare) and their ease of propagation from seed (based on expert opinion).

These species lists and planting densities are intended for revegetation using tubestock and are based, where possible, on surveys undertaken in remnant areas. Species should be selected from this list to achieve an overall composition and density that is appropriate for the site and revegetation program.

A diagram illustrating where the vegetation communities are likely to be located along the terrestrial aquatic gradient in the CLLMM landscape can be found on page 14 and 15.

1. *Eucalyptus fasciculosa* ● (Pink Gum) Woodland

In the CLLMM region this vegetation community is found predominantly in the Mt Lofty Ranges management landscape (Bonifacio *et al.* 2016). It is also found on Kangaroo Island and in the South-East (Nicolle, 2013). It is usually found on lower to mid slopes in poor quality (infertile) sandy soils (Nicolle, 2013) on flats to low sandy rises in plains and low hills with sand over clay soils, (G3 & G4) and/or dune systems with bleached siliceous sand (H3).

Pink Gum Woodland is usually associated with *Eucalyptus baxteri* with an understorey dominated by grasses and sparse shrubs including *Rytidosperma* spp., *Austrostipa* spp., *Lepidosperma* spp., *Lomandra* spp., *Enchylaena tomentosa*, *Hibbertia virgata*, *Muehlenbeckia gunnii*, *Pimelea humilis* and *Acacia paradoxa*.

Note: On sandy soils this low woodland comprises of scrubby smaller *E. fasciculosa* that other eucalypt communities are not strongly associated with. For example, *E. cosmophylla* prefers lateritic infertile loam, while *E. leptophylla* prefers sandy loam soils. *E. leucoxyton* prefers loam soils or shallow sandy soils.



Pink Gum Woodland species list

Species Name	Common Name	Storey	Plants Per Ha	Propagation
<i>Eucalyptus fasciculosa</i>	Pink Gum	Over	300	Easy
<i>Eucalyptus cosmophylla</i>	Cup Gum	Over	100	Easy
<i>Eucalyptus odorata</i>	Peppermint Box	Over	100	Easy
<i>Eucalyptus incrassata</i>	Ridge-fruited Mallee	Over	70	Easy
<i>Callitris gracilis</i>	Southern Cypress Pine	Over	30	Easy
<i>Melaleuca lanceolata</i>	Dryland Tea-tree	Over	30	Easy
<i>Leptospermum myrsinoides</i>	Heath Tea-tree	Mid	1000	Easy
<i>Xanthorrhoea semiplana</i> ssp. <i>semiplana</i>	Yacca	Mid	1000	Easy
<i>Calytrix tetragona</i>	Common Fringe-myrtle	Mid	500	Difficult
<i>Dillwynia sericea</i>	Showy Parrot-pea	Mid	500	Easy
<i>Acacia hakeoides</i>	Hakea Wattle	Mid	250	Easy
<i>Acacia euthycarpa</i>	Wallowa	Mid	150	Easy
<i>Bursaria spinosa</i> ssp. <i>spinosa</i>	Sweet Bursaria	Mid	150	Easy
<i>Acacia paradoxa</i>	Kangaroo Thorn	Mid	130	Easy
<i>Acacia myrtifolia</i>	Myrtle Wattle	Mid	100	Easy
<i>Acacia pycnantha</i>	Golden Wattle	Mid	100	Easy
<i>Grevillea lavandulacea</i> ssp. <i>lavandulacea</i>	Spider-flower	Mid	70	Difficult
<i>Olearia ramulosa</i>	Twiggy Daisy-bush	Mid	70	Easy
<i>Acacia spinescens</i>	Spiny Wattle	Mid	40	Easy
<i>Dodonaea viscosa</i> ssp. <i>spatulata</i>	Sticky Hop-bush	Mid	30	Easy
<i>Hakea rostrata</i>	Beaked Hakea	Mid	30	Easy
<i>Rhagodia candolleana</i> ssp. <i>candolleana</i>	Sea-berry Saltbush	Mid	30	Easy
<i>Neurachne alopecuroidea</i>	Fox-tail Mulga-grass	Under	1000	Easy
<i>Leucopogon virgatus</i> var. <i>virgatus</i>	Common Beard-heath	Under	800	Difficult
<i>Boronia coerulescens</i> ssp. <i>coerulescens</i>	Blue Boronia	Under	500	Difficult
<i>Dianella revoluta</i> var. <i>revoluta</i>	Black-anther Flax-lily	Under	500	Easy
<i>Dianella brevicaulis</i>	Short-stem Flax-lily	Under	300	Easy
<i>Helichrysum leucopsideum</i>	Satin Everlasting	Under	250	Easy

Species Name	Common Name	Storey	Plants Per Ha	Propagation
<i>Correa reflexa</i> var. <i>reflexa</i>	Common Correa	Under	200	Difficult
<i>Lomandra collina</i>	Sand Mat-rush	Under	200	Difficult
<i>Pimelea octophylla</i>	Woolly Riceflower	Under	200	Difficult
<i>Austrostipa flavescens</i>	Coast Spear-grass	Under	150	Easy
<i>Austrostipa mollis</i>	Soft Spear-grass	Under	150	Easy
<i>Thomasia petalocalyx</i>	Paper-flower	Under	150	Difficult
<i>Anthosachne scabra</i>	Native Wheat-grass	Under	100	Easy
<i>Kunzea pomifera</i>	Muntries	Under	100	Easy
<i>Dillwynia hispida</i>	Red Parrot-pea	Under	70	Easy
<i>Pimelea humilis</i>	Low Riceflower	Under	50	Difficult
<i>Lomandra juncea</i>	Desert Mat-rush	Under	40	Difficult
<i>Muehlenbeckia gunnii</i>	Coastal Climbing Lignum	Under	30	Easy

Pink Gum Woodland



2. *Eucalyptus cosmophylla* (Cup Gum) and *E. baxteri* (Brown Stringy Bark) Woodland Over Heath



This vegetation community is found predominantly in the Mt Lofty Ranges management landscape on sand over clay soils (G3 & G5) and to a lesser extent on acidic sandy loam over red clay (K3) or hard loamy sand over red clay (D5). It is found in higher elevation areas, receiving more rainfall than Pink Gum Woodland.

The dominant overstorey species are usually *Eucalyptus cosmophylla* +/- *E. baxteri*, but *E. fasciculosa* can also occur. *Xanthorrhoea semiplana* are a common understorey species along with *Allocasuarina striata*, *Acacia* spp., *Banksia* spp., and *Calytrix* spp.

Note: Cup Gum and Brown Stringy Bark Woodland vegetation communities are usually found on low fertility sandy loams to loams with lateritic influence, where some blown in sand is present.

Cup Gum and Brown Stringy Bark Woodland





Cup Gum and Brown Stringy Bark Woodland species list

Species Name	Common Name	Storey	Plants Per Ha	Propagation
<i>Eucalyptus baxteri</i>	Brown Stringybark	Over	1000	Easy
<i>Eucalyptus cosmophylla</i>	Cup Gum	Over	1000	Easy
<i>Eucalyptus fasciculosa</i>	Pink Gum	Over	200	Easy
<i>Allocasuarina striata</i>	Stalked Oak-bush	Mid	500	Easy
<i>Calytrix glaberrima</i>	Smooth Heath-myrtle	Mid	500	Difficult
<i>Calytrix tetragona</i>	Common Fringe-myrtle	Mid	500	Difficult
<i>Banksia ornata</i>	Desert Banksia	Mid	400	Easy
<i>Hakea carinata</i>	Erect Hakea	Mid	400	Easy
<i>Xanthorrhoea semiplana</i> ssp. <i>semiplana</i>	Yacca	Mid	400	Easy
<i>Leptospermum myrsinoides</i>	Heath Tea-tree	Mid	300	Easy
<i>Adenanthos terminalis</i>	Yellow Gland-flower	Mid	200	Difficult
<i>Hakea rostrata</i>	Beaked Hakea	Mid	150	Easy
<i>Olearia ramulosa</i>	Twiggy Daisy-bush	Mid	150	Easy
<i>Acacia pycnantha</i>	Golden Wattle	Mid	100	Easy
<i>Dillwynia sericea</i>	Showy Parrot-pea	Mid	100	Easy
<i>Spyridium thymifolium</i>	Thyme-leaf Spyridium	Mid	100	Difficult
<i>Acacia myrtifolia</i>	Myrtle Wattle	Mid	50	Easy
<i>Correa reflexa</i> var. <i>reflexa</i>	Common Correa	Under	1000	Difficult
<i>Pultenaea tenuifolia</i>	Narrow-leaf Bush-pea	Under	1000	Easy
<i>Correa reflexa</i> var. <i>scabridula</i>	Common Correa	Under	900	Difficult
<i>Platylobium obtusangulum</i>	Holly Flat-pea	Under	700	Easy
<i>Billardiera versicolor</i>	Yellow-flower Apple-berry	Under	600	Difficult
<i>Boronia coerulescens</i> ssp. <i>coerulescens</i>	Blue Boronia	Under	400	Difficult
<i>Isopogon ceratophyllum</i>	Horny Cone-bush	Under	300	Easy
<i>Austrostipa mollis</i>	Soft Spear-grass	Under	150	Easy
<i>Dianella brevicaulis</i>	Short-stem Flax-lily	Under	100	Easy

Species Name	Common Name	Storey	Plants Per Ha	Propagation
<i>Lomandra densiflora</i>	Soft Tussock Mat-rush	Under	100	Difficult
<i>Micrantheum demissum</i>	Dwarf Micrantheum	Under	100	Difficult
<i>Rytidosperma carphoides</i>	Short Wallaby-grass	Under	100	Easy
<i>Lomandra juncea</i>	Desert Mat-rush	Under	50	Difficult
<i>Rytidosperma caespitosum</i>	Common Wallaby-grass	Under	30	Easy

Sun dew (Drosera sp.) in a patch of grassy woodland.



3. Coastal Shrubland ●

This vegetation community mostly occurs along the coastal dunes of the Coorong (Young Husband Peninsula), but may also occur in a small proportion of the Lower Lakes Terrestrial management landscape. It predominantly grows on deep sands (H1, H2), and to a lesser extent shallow sandy loam on calcrete (B3).

Dominant species occurring in this vegetation community are *Olearia axillaris*, *Leucopogon parviflorus* and *Acacia longifolia* var. *sophorae*.

Coastal Shrubland





Coastal Shrubland species list

Species Name	Common Name	Storey	Plants Per Ha	Propagation
<i>Allocasuarina verticillata</i>	Drooping Sheoak	Over	200	Easy
<i>Myoporum insulare</i>	Common Boobialla	Over	200	Easy
<i>Melaleuca lanceolata</i>	Dryland Tea-tree	Over	100	Easy
<i>Pimelea serpyllifolia</i> ssp. <i>serpyllifolia</i>	Thyme Riceflower	Mid	700	Difficult
<i>Acacia leiophylla</i>	Coast Golden Wattle	Mid	500	Easy
<i>Rhagodia candolleana</i> ssp. <i>candolleana</i>	Sea-berry Saltbush	Mid	500	Easy
<i>Acacia cupularis</i>	Cup Wattle	Mid	300	Easy
<i>Acacia longifolia</i> ssp. <i>sophorae</i>	Coastal Wattle	Mid	250	Easy
<i>Adriana quadripartita</i>	Coast Bitter-bush	Mid	250	Easy
<i>Atriplex paludosa</i> ssp. <i>paludosa</i>	Marsh Saltbush	Mid	200	Easy
<i>Lasiopetalum discolor</i>	Coast Velvet-bush	Mid	200	Difficult
<i>Olearia axillaris</i>	Coast Daisy-bush	Mid	200	Easy
<i>Exocarpos syrticola</i>	Coast Cherry	Mid	100	Difficult
<i>Leucopogon parviflorus</i>	Coast Beard-heath	Mid	100	Difficult
<i>Dodonaea viscosa</i> ssp. <i>spatulata</i>	Sticky Hop-bush	Mid	50	Easy
<i>Exocarpos sparteus</i>	Slender Cherry	Mid	30	Difficult
<i>Dianella brevicaulis</i>	Short-stem Flax-lily	Under	1000	Easy
<i>Billardiera cymosa</i> ssp. <i>cymosa</i>	Sweet Apple-berry	Under	500	Easy
<i>Leucophyta brownii</i>	Coast Cushion Bush	Under	300	Easy
<i>Poa poiformis</i> var. <i>poiformis</i>	Coast Tussock-grass	Under	300	Easy
<i>Atriplex semibaccata</i>	Berry Saltbush	Under	200	Easy
<i>Austrostipa stipoides</i>	Coast Spear-grass	Under	200	Easy
<i>Carpobrotus rossii</i>	Native Pigface	Under	200	Easy
<i>Clematis microphylla</i>	Old Man's Beard	Under	200	Easy
<i>Correa reflexa</i> var. <i>reflexa</i>	Common Correa	Under	200	Difficult
<i>Distichlis distichophylla</i>	Emu-grass	Under	200	Easy
<i>Kennedia prostrata</i>	Scarlet Runner	Under	200	Easy
<i>Spinifex hirsutus</i>	Rolling Spinifex	Under	200	Easy

Species Name	Common Name	Storey	Plants Per Ha	Propagation
<i>Tetragonia implexicoma</i>	Bower Spinach	Under	150	Easy
<i>Ficinia nodosa</i>	Knobby Club-rush	Under	100	Easy
<i>Muehlenbeckia adpressa</i>	Climbing Lignum	Under	100	Easy
<i>Muehlenbeckia gunnii</i>	Coastal Climbing Lignum	Under	100	Easy
<i>Pelargonium australe</i>	Austral Stork's-bill	Under	100	Easy
<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>	Ruby Saltbush	Under	70	Easy
<i>Dianella revoluta</i> var. <i>revoluta</i>	Black-anther Flax-lily	Under	50	Easy
<i>Lotus australis</i>	Austral Trefoil	Under	50	Easy

A flowering Yakka/Grass-tree (*Xanthorrhoea caespitosa*) with a Monarch butterfly feeding on it.



4. *Eucalyptus diversifolia* ssp. *diversifolia* (Coastal White Mallee) Mallee



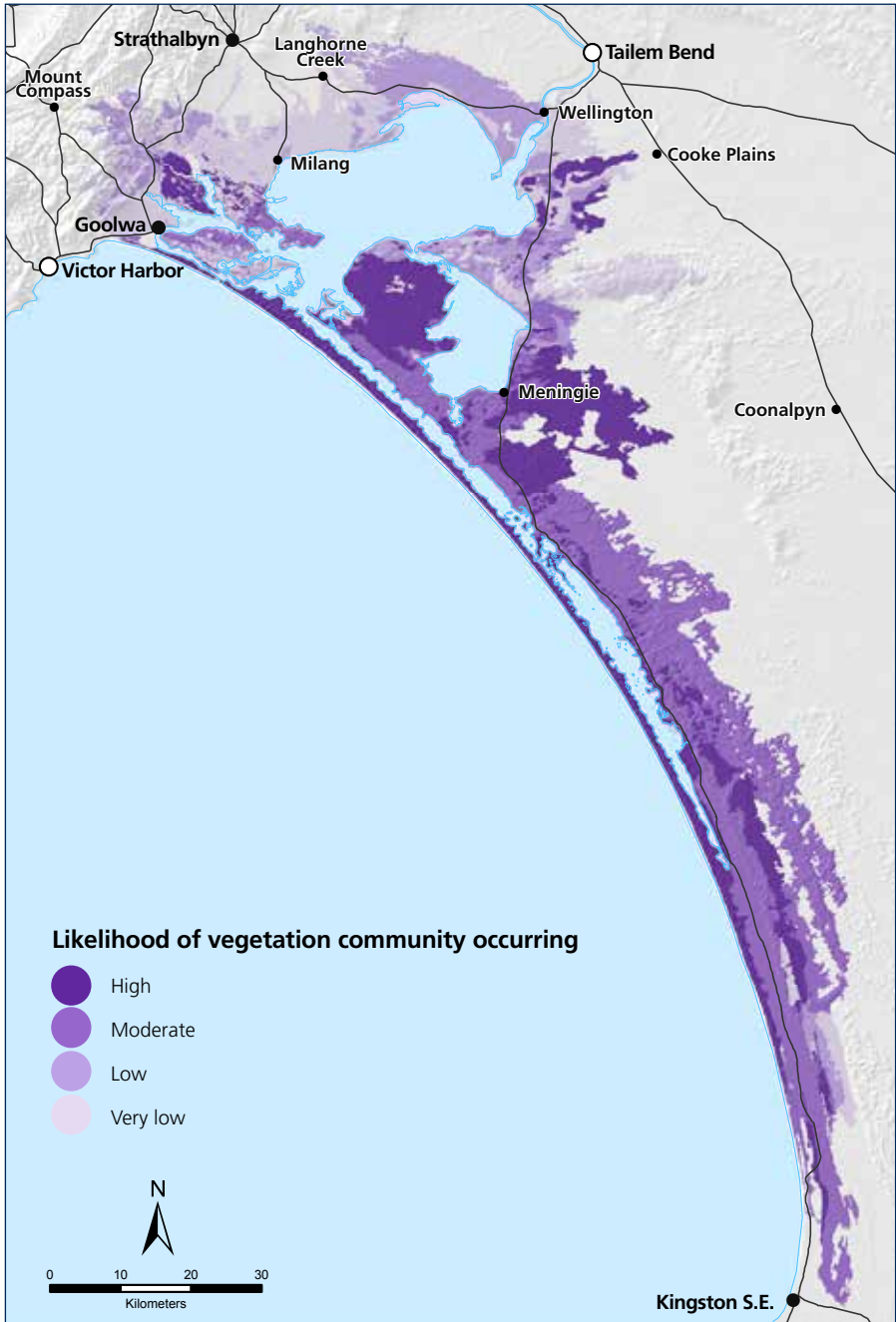
This vegetation community can occur in all management landscapes of the CLLMM region, but generally it is found in the South East and to a lesser extent the Lower Lakes Terrestrial management landscape. It predominantly occurs on shallow sandy soil on calcrete (B2 & B3) and deep sands (H1 & H3), and to a lesser extent sand over clay (G3 & G5). Outcropping calcrete can often be seen associated with these soil types. In rare cases it can also occur on the upper margins of Samphire Swamp vegetation in saline soils (N2) in the South East management landscape.

This vegetation community is dominated

by an *Eucalyptus diversifolia* ssp. *diversifolia* and/or *E. incrassata* overstorey with a heathy-shrubby understorey. Common understorey species include *Xanthorrhoea caespitosa* (South East management landscape only), *Lepidosperma carphoides* and *Billardiera cymosa*. It occurs on a wide variety of soil types, so can co-occur with many of the vegetation communities described in this guide.

Coastal White Mallee





Coastal White Mallee propagation list

Species Name	Common Name	Storey	Plants Per Ha	Propagation
<i>Myoporum insulare</i>	Common Boobialla	Over	800	Easy
<i>Allocasuarina verticillata</i>	Drooping Sheoak	Over	500	Easy
<i>Callitris gracilis</i>	Southern Cypress Pine	Over	500	Easy
<i>Eucalyptus diversifolia</i> ssp. <i>diversifolia</i>	Coastal White Mallee	Over	500	Easy
<i>Eucalyptus incrassata</i>	Ridge-fruited Mallee	Over	200	Easy
<i>Melaleuca lanceolata</i>	Dryland Tea-tree	Over	30	Easy
<i>Xanthorrhoea caespitosa</i>	Sand-heath Yacca	Mid	1000	Easy
<i>Pimelea serpyllifolia</i> ssp. <i>serpyllifolia</i>	Thyme Riceflower	Mid	700	Difficult
<i>Bursaria spinosa</i> ssp. <i>spinosa</i>	Sweet Bursaria	Mid	600	Easy
<i>Hakea vittata</i>	Limestone Needlebush	Mid	600	Easy
<i>Acacia leiophylla</i>	Coast Golden Wattle	Mid	500	Easy
<i>Acacia pycnantha</i>	Golden Wattle	Mid	500	Easy
<i>Dodonaea viscosa</i> ssp. <i>spatulata</i>	Sticky Hop-bush	Mid	500	Easy
<i>Pomaderris paniculosa</i> ssp. <i>paniculosa</i>	Mallee Pomaderris	Mid	500	Difficult
<i>Rhagodia candolleana</i> ssp. <i>candolleana</i>	Sea-berry Saltbush	Mid	400	Easy
<i>Acacia brachybotrya</i>	Grey Mulga-bush	Mid	350	Easy
<i>Acacia myrtifolia</i>	Myrtle Wattle	Mid	300	Easy
<i>Banksia marginata</i>	Silver Banksia	Mid	300	Easy
<i>Acacia longifolia</i> ssp. <i>sophorae</i>	Coastal Wattle	Mid	200	Easy
<i>Hakea mitchellii</i>	Heath Needlebush	Mid	100	Easy
<i>Leucopogon parviflorus</i>	Coast Beard-heath	Mid	100	Difficult
<i>Olearia axillaris</i>	Coast Daisy-bush	Mid	100	Easy
<i>Choretrum glomeratum</i>	White Sour-bush	Mid	50	Difficult
<i>Maireana brevifolia</i>	Short-leaf Bluebush	Mid	50	Easy
<i>Exocarpos sparteus</i>	Slender Cherry	Mid	30	Difficult
<i>Austrostipa drummondii</i>	Cottony Spear-grass	Under	1000	Easy
<i>Austrostipa pilata</i>	Prickly Spear-grass	Under	1000	Easy
<i>Dianella brevicaulis</i>	Short-stem Flax-lily	Under	1000	Easy

Species Name	Common Name	Storey	Plants Per Ha	Propagation
<i>Gahnia deusta</i>	Limestone Saw-sedge	Under	1000	Difficult
<i>Rytidosperma caespitosum</i>	Common Wallaby-grass	Under	1000	Easy
<i>Billardiera cymosa</i> ssp. <i>cymosa</i>	Sweet Apple-berry	Under	500	Easy
<i>Dianella revoluta</i> var. <i>revoluta</i>	Black-anther Flax-lily	Under	500	Easy
<i>Lasiopetalum baueri</i>	Slender Velvet-bush	Under	500	Difficult
<i>Thomasia petalocalyx</i>	Paper-flower	Under	500	Difficult
<i>Helichrysum leucopsideum</i>	Satin Everlasting	Under	250	Easy
<i>Carpobrotus rossii</i>	Native Pigface	Under	200	Easy
<i>Clematis microphylla</i>	Old Man's Beard	Under	200	Easy
<i>Lomandra effusa</i>	Scented Mat-rush	Under	200	Difficult
<i>Austrostipa elegantissima</i>	Feather Spear-grass	Under	150	Easy
<i>Ficinia nodosa</i>	Knobby Club-rush	Under	100	Easy
<i>Kunzea pomifera</i>	Muntries	Under	100	Easy
<i>Muehlenbeckia adpressa</i>	Climbing Lignum	Under	100	Easy
<i>Muehlenbeckia gunnii</i>	Coastal Climbing Lignum	Under	100	Easy
<i>Neurachne alopecuroidea</i>	Fox-tail Mulga-grass	Under	100	Easy
<i>Tetragonia implexicoma</i>	Bower Spinach	Under	100	Easy
<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>	Ruby Saltbush	Under	70	Easy
<i>Vittadinia australasica</i> var. <i>australasica</i>	Sticky New Holland Daisy	Under	50	Easy

5. *Allocasuarina verticillata* (Drooping Sheoak) Low Woodland ● ●

Drooping Sheoak Low Woodland is mainly found in the South East but also occurs in the Lower Lakes Terrestrial management landscape.

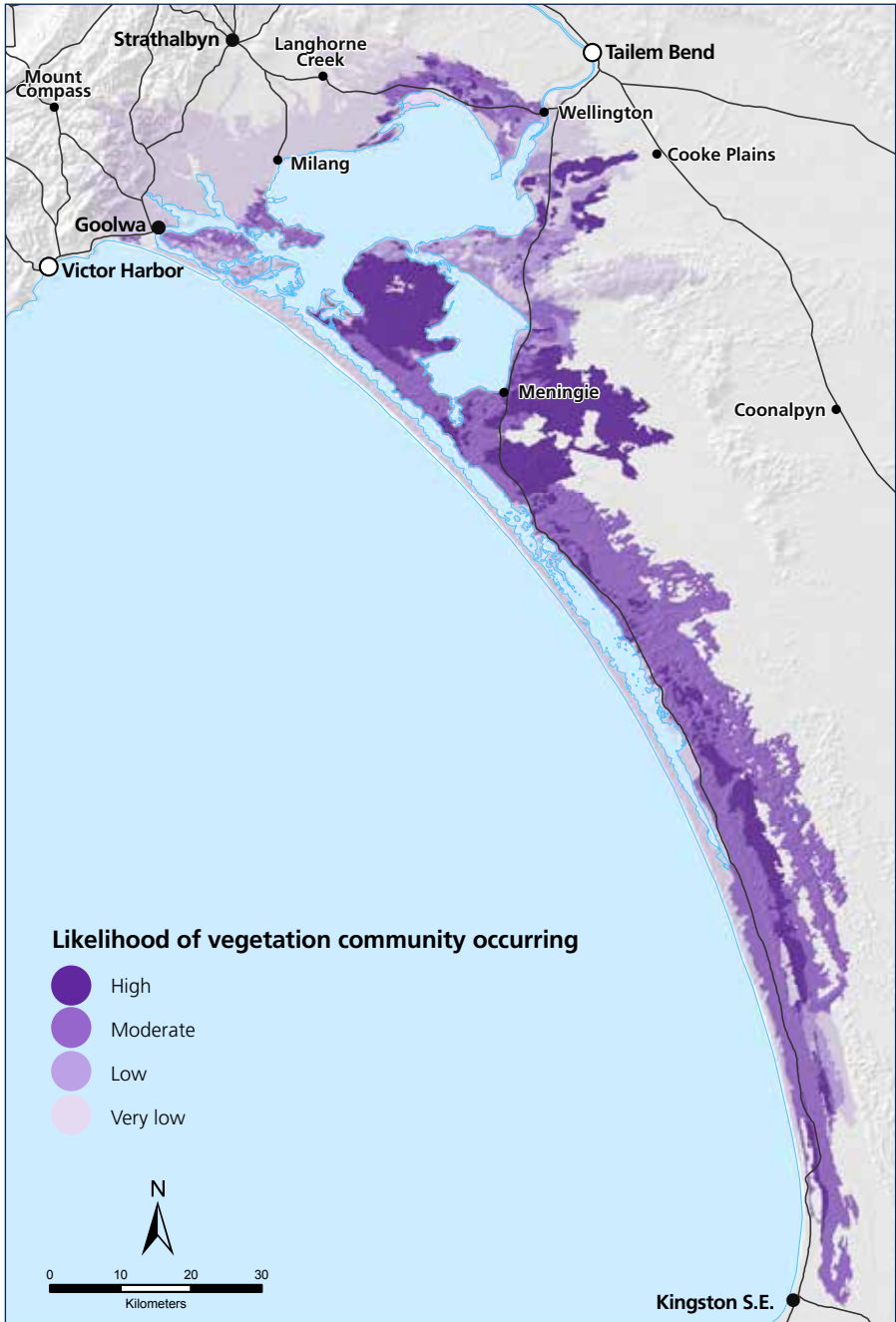
It grows on shallow sandy soil on calcrete (B3 & B8) and to a lesser extent bleached sand over sandy clay (G3), bleached siliceous sand (H3) and rarely saline soils (N2). Much of this vegetation community has been cleared.

It has a shrubby understorey, although may have had a grassy understorey in its original state (based on expert opinion). Current remnants have *Allocasuarina verticillata* as the dominant overstorey species with understorey species including *Xanthorrhoea caespitosa* (South East region only), *Hibbertia sericea*, *Kunzea pomifera* and *Clematis microphylla*.

Note: The coastal form of this vegetation community has a coastal heath or shrub understorey. Elsewhere it tends to be grassy and open.

Drooping Sheoak Low Woodland





Drizzling Sheoak Low Woodland species list

Species Name	Common Name	Storey	Plants Per Ha	Propagation
<i>Allocasuarina verticillata</i>	Drizzling Sheoak	Over	1000	Easy
<i>Myoporum insulare</i>	Common Boobialla	Over	800	Easy
<i>Callitris gracilis</i>	Southern Cypress Pine	Over	200	Easy
<i>Melaleuca lanceolata</i>	Dryland Tea-tree	Over	200	Easy
<i>Eucalyptus diversifolia</i> ssp. <i>diversifolia</i>	Coastal White Mallee	Over	50	Easy
<i>Pittosporum angustifolium</i>	Native Apricot	Over	50	Easy
<i>Xanthorrhoea caespitosa</i>	Sand-heath Yacca	Mid	1000	Easy
<i>Pimelea serpyllifolia</i> ssp. <i>serpyllifolia</i>	Thyme Riceflower	Mid	700	Difficult
<i>Acacia pycnantha</i>	Golden Wattle	Mid	600	Easy
<i>Bursaria spinosa</i> ssp. <i>spinosa</i>	Sweet Bursaria	Mid	600	Easy
<i>Acacia leiophylla</i>	Coast Golden Wattle	Mid	500	Easy
<i>Dodonaea viscosa</i> ssp. <i>spatulata</i>	Sticky Hop-bush	Mid	500	Easy
<i>Pomaderris paniculosa</i> ssp. <i>paniculosa</i>	Mallee Pomaderris	Mid	500	Difficult
<i>Rhagodia candolleana</i> ssp. <i>candolleana</i>	Sea-berry Saltbush	Mid	400	Easy
<i>Acacia brachybotrya</i>	Grey Mulga-bush	Mid	350	Easy
<i>Acacia myrtifolia</i>	Myrtle Wattle	Mid	300	Easy
<i>Banksia marginata</i>	Silver Banksia	Mid	300	Easy
<i>Acacia longifolia</i> ssp. <i>sophorae</i>	Coastal Wattle	Mid	250	Easy
<i>Hakea mitchellii</i>	Heath Needlebush	Mid	100	Easy
<i>Leucopogon parviflorus</i>	Coast Beard-heath	Mid	100	Difficult
<i>Olearia axillaris</i>	Coast Daisy-bush	Mid	100	Easy
<i>Exocarpos sparteus</i>	Slender Cherry	Mid	30	Difficult
<i>Austrostipa drummondii</i>	Cottony Spear-grass	Under	1000	Easy
<i>Austrostipa pilata</i>	Prickly Spear-grass	Under	1000	Easy
<i>Dianella brevicaulis</i>	Short-stem Flax-lily	Under	1000	Easy
<i>Gahnia deusta</i>	Limestone Saw-sedge	Under	1000	Difficult
<i>Kunzea pomifera</i>	Muntries	Under	1000	Easy

Species Name	Common Name	Storey	Plants Per Ha	Propagation
<i>Rytidosperma caespitosum</i>	Common Wallaby-grass	Under	1000	Easy
<i>Billardiera cymosa</i> ssp. <i>cymosa</i>	Sweet Apple-berry	Under	500	Easy
<i>Dianella revoluta</i> var. <i>revoluta</i>	Black-anther Flax-lily	Under	500	Easy
<i>Lasiopetalum baueri</i>	Slender Velvet-bush	Under	500	Difficult
<i>Thomasia petalocalyx</i>	Paper-flower	Under	500	Difficult
<i>Helichrysum leucopsidium</i>	Satin Everlasting	Under	250	Easy
<i>Lomandra effusa</i>	Scented Mat-rush	Under	250	Difficult
<i>Carpobrotus rossii</i>	Native Pigface	Under	200	Easy
<i>Clematis microphylla</i>	Old Man's Beard	Under	200	Easy
<i>Austrostipa elegantissima</i>	Feather Spear-grass	Under	150	Easy
<i>Tetragonia implexicoma</i>	Bower Spinach	Under	150	Easy
<i>Ficinia nodosa</i>	Knobby Club-rush	Under	100	Easy
<i>Lomandra micrantha</i>	Small-flower Mat-rush	Under	100	Difficult
<i>Muehlenbeckia adpressa</i>	Climbing Lignum	Under	100	Easy
<i>Muehlenbeckia gunnii</i>	Coastal Climbing Lignum	Under	100	Easy
<i>Neurachne alopecuroidea</i>	Fox-tail Mulga-grass	Under	100	Easy
<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>	Ruby Saltbush	Under	70	Easy
<i>Vittadinia australasica</i> var. <i>australasica</i>	Sticky New Holland Daisy	Under	50	Easy

6. Mixed Eucalypt Woodland / Mallee Communities

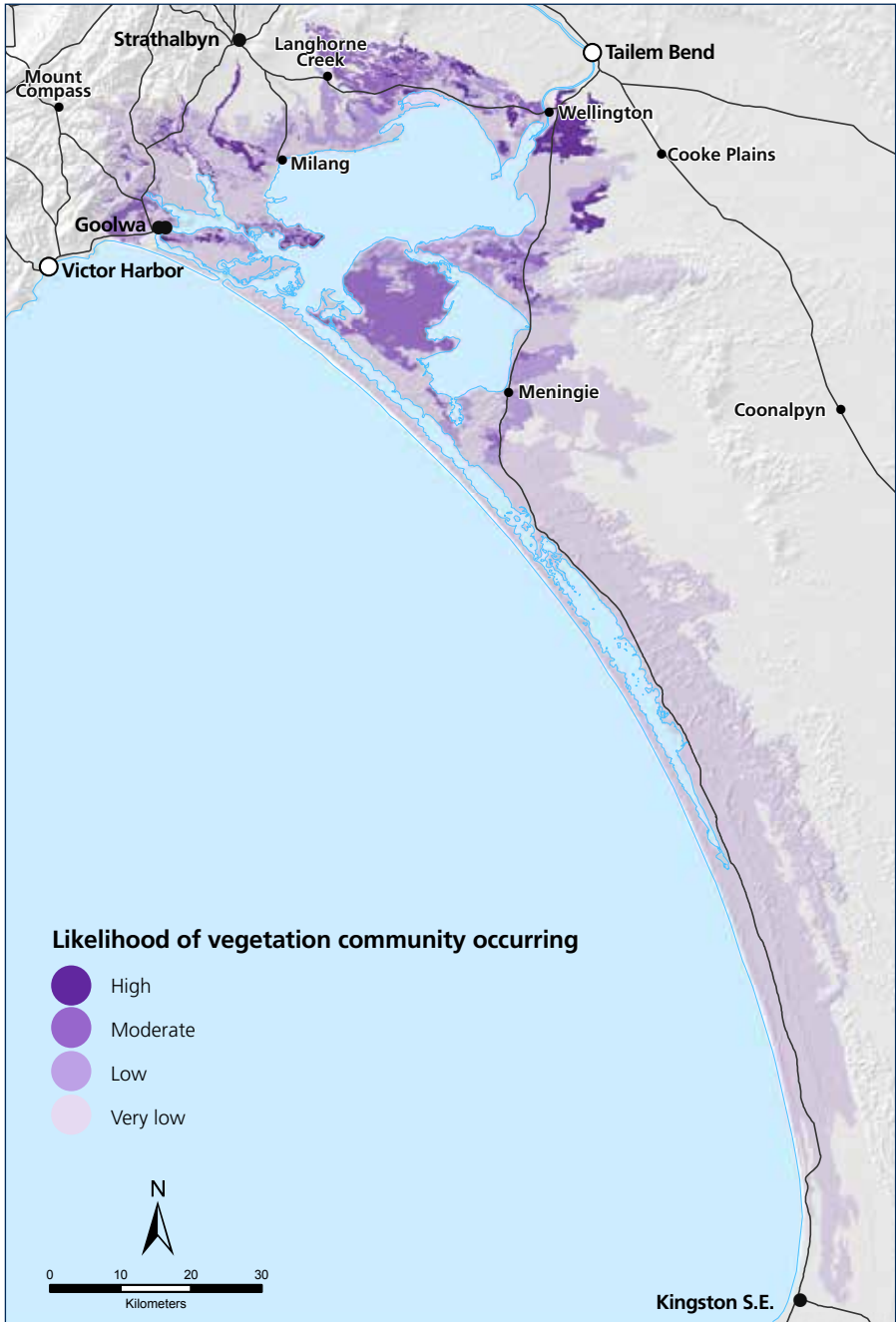
6.1 *Eucalyptus porosa* (Mallee Box) Grassy Woodland

Found in the Mt Lofty Ranges and Lower Lakes Terrestrial management landscapes in the CLLMM region (Bonifacio *et al.* 2016), this community is usually associated with a moderate rainfall in semi-arid areas (Berkinshaw 2009). It is not found in wetter areas of the Mt Lofty Ranges (Nicolle 2013). This species is also found on the Yorke and Eyre peninsulas, Flinders Ranges and the South-East (Nicolle 2013). It is usually located on level to gently undulating plains and in poorly drained depressions on clay over limestone and coastal limestone bluffs, but can also occur on rises and low hills (Nicolle 2013). In the CLLMM landscape it is associated with loam over poorly structured red clay (D3), shallow calcareous loam on calcrete (B2) or shallow sandy loam on calcrete (B3).

It is associated with overstorey species such as *Eucalyptus fasciculosa*, *E. leucoxydon*, *E. odorata*, *Allocasuarina verticillata* and *Callitris gracilis*. It usually has a sparsely distributed midstorey and understorey that is dominated by grasses and sparse shrubs including *Austrostipa* spp., *Rytidosperma* spp., *Acacia* spp., *Dianella revoluta*, *Dodonaea viscosa*, *Clematis microphylla*, *Oxalis perennans*, *Lomandra effusa* and *Melaleuca* spp.

Mallee Box Grassy Woodland





Mallee Box Grassy Woodland species list

Species Name	Common Name	Storey	Plants Per Ha	Propagation
<i>Eucalyptus porosa</i>	Mallee Box	Over	500	Easy
<i>Callitris gracilis</i>	Southern Cypress Pine	Over	200	Easy
<i>Allocasuarina verticillata</i>	Drooping Sheoak	Over	100	Easy
<i>Eucalyptus diversifolia</i> ssp. <i>diversifolia</i>	Coastal White Mallee	Over	100	Easy
<i>Melaleuca lanceolata</i>	Dryland Tea-tree	Over	100	Easy
<i>Myoporum insulare</i>	Common Boobialla	Over	100	Easy
<i>Eucalyptus odorata</i>	Peppermint Box	Over	50	Easy
<i>Pimelea serpyllifolia</i> ssp. <i>serpyllifolia</i>	Thyme Riceflower	Mid	700	Difficult
<i>Bursaria spinosa</i> ssp. <i>spinosa</i>	Sweet Bursaria	Mid	600	Easy
<i>Acacia pycnantha</i>	Golden Wattle	Mid	500	Easy
<i>Calytrix tetragona</i>	Common Fringe-myrtle	Mid	500	Difficult
<i>Pomaderris paniculosa</i> ssp. <i>paniculosa</i>	Mallee Pomaderris	Mid	500	Difficult
<i>Acacia myrtifolia</i>	Myrtle Wattle	Mid	300	Easy
<i>Banksia marginata</i>	Silver Banksia	Mid	300	Easy
<i>Daviesia benthamii</i> ssp. <i>humilis</i>	Mallee Bitter-pea	Mid	200	Easy
<i>Acacia paradoxa</i>	Kangaroo Thorn	Mid	130	Easy
<i>Dodonaea viscosa</i> ssp. <i>spatulata</i>	Sticky Hop-bush	Mid	130	Easy
<i>Leptospermum myrsinoides</i>	Heath Tea-tree	Mid	100	Easy
<i>Olearia ramulosa</i>	Twiggy Daisy-bush	Mid	100	Easy
<i>Rhagodia candolleana</i> ssp. <i>candolleana</i>	Sea-berry Saltbush	Mid	100	Easy
<i>Acacia spinescens</i>	Spiny Wattle	Mid	40	Easy
<i>Austrostipa drummondii</i>	Cottony Spear-grass	Under	1000	Easy
<i>Rytidosperma caespitosum</i>	Common Wallaby-grass	Under	1000	Easy
<i>Billardiera cymosa</i> ssp. <i>cymosa</i>	Sweet Apple-berry	Under	500	Easy
<i>Dianella revoluta</i> var. <i>revoluta</i>	Black-anther Flax-lily	Under	500	Easy
<i>Vittadinia cuneata</i> var. <i>cuneata</i>	Fuzzy New Holland Daisy	Under	500	Easy
<i>Dianella brevicaulis</i>	Short-stem Flax-lily	Under	300	Easy

Species Name	Common Name	Storey	Plants Per Ha	Propagation
<i>Lomandra effusa</i>	Scented Mat-rush	Under	250	Difficult
<i>Carpobrotus rossii</i>	Native Pigface	Under	200	Easy
<i>Clematis microphylla</i>	Old Man's Beard	Under	200	Easy
<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>	Ruby Saltbush	Under	200	Easy
<i>Austrostipa elegantissima</i>	Feather Spear-grass	Under	150	Easy
<i>Austrostipa flavescens</i>	Coast Spear-grass	Under	150	Easy
<i>Thomasia petalocalyx</i>	Paper-flower	Under	150	Difficult
<i>Ficinia nodosa</i>	Knobby Club-rush	Under	100	Easy
<i>Lasiopetalum baueri</i>	Slender Velvet-bush	Under	100	Difficult
<i>Lomandra micrantha</i>	Small-flower Mat-rush	Under	100	Difficult
<i>Muehlenbeckia adpressa</i>	Climbing Lignum	Under	100	Easy
<i>Muehlenbeckia gunnii</i>	Coastal Climbing Lignum	Under	100	Easy

Desert Baeckea (*Baeckea crassifolia*) flowering in a grassy woodland.



6.2 *Eucalyptus odorata* (Peppermint Box) Grassy Woodland ●

In the CLLMM region this vegetation community is found in the Mt Lofty Ranges management landscape (Bonifacio *et al.* 2016) with moderate rainfall in semi-arid areas (Berkinshaw 2009). It is also on the southern Eyre peninsula and South East. This vegetation community is usually found on undulating plains and on lower to mid slopes (up to 30m elevation) with shallow loamy soils (Nicolle 2013). In the CLLMM landscape it is associated with loam over poorly structured red clay (D3) and sand over poorly structured clay (G4).

It can be found growing with *Eucalyptus fasciculosa*, *E. leucoxylon*, *Allocasuarina verticillata* and *E. phenax* with an understorey dominated by grasses and sparse shrubs including *Austrostipa* spp., *Rytidosperma* spp., *Dianella revoluta*, *Clematis microphylla*, *Oxalis perennans*, *Lomandra effusa* and *Melaleuca* spp.

Note: While it can be associated with drainage lines in other locations, in this management landscape *E. porosa* is more likely to dominate while *E. odorata* tends to be associated with well drained sites at the tops of hills.

Peppermint Box Grassy Woodland





Peppermint Box Grassy Woodland species list

Species Name	Common Name	Storey	Plants Per Ha	Propagation
<i>Eucalyptus odorata</i>	Peppermint Box	Over	800	Easy
<i>Allocasuarina verticillata</i>	Drooping Sheoak	Over	100	Easy
<i>Dodonaea baueri</i>	Crinkled Hop-bush	Mid	700	Easy
<i>Bursaria spinosa</i> ssp. <i>spinosa</i>	Sweet Bursaria	Mid	600	Easy
<i>Acacia pycnantha</i>	Golden Wattle	Mid	500	Easy
<i>Daviesia benthamii</i> ssp. <i>humilis</i>	Mallee Bitter-pea	Mid	200	Easy
<i>Olearia pannosa</i> ssp. <i>pannosa</i>	Silver Daisy-bush	Mid	200	Easy
<i>Olearia ramulosa</i>	Twiggy Daisy-bush	Mid	200	Easy
<i>Grevillea ilicifolia</i> ssp. <i>ilicifolia</i>	Holly-leaf Grevillea	Mid	70	Difficult
<i>Exocarpos cupressiformis</i>	Native Cherry	Mid	50	Difficult
<i>Melaleuca uncinata</i>	Broombush	Mid	50	Easy
<i>Spyridium phyllicoides</i>	Narrow-leaf Spyridium	Mid	30	Difficult
<i>Aristida behriana</i>	Brush Wire-grass	Under	1000	Easy
<i>Rytidosperma caespitosum</i>	Common Wallaby-grass	Under	1000	Easy
<i>Lomandra multiflora</i> ssp. <i>dura</i>	Hard Mat-rush	Under	700	Difficult
<i>Eutaxia microphylla</i>	Common Eutaxia	Under	600	Easy
<i>Dianella revoluta</i> var. <i>revoluta</i>	Black-anther Flax-lily	Under	500	Easy
<i>Vittadinia cuneata</i> var. <i>cuneata</i>	Fuzzy New Holland Daisy	Under	500	Easy
<i>Lomandra effusa</i>	Scented Mat-rush	Under	250	Difficult
<i>Austrostipa elegantissima</i>	Feather Spear-grass	Under	100	Easy
<i>Lasiopetalum baueri</i>	Slender Velvet-bush	Under	100	Difficult
<i>Lomandra micrantha</i> ssp. <i>micrantha</i>	Small-flower Mat-rush	Under	100	Difficult
<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>	Ruby Saltbush	Under	50	Easy
<i>Rytidosperma setaceum</i>	Small-flower Wallaby-grass	Under	50	Easy
<i>Rytidosperma setaceum</i>	Small-flower Wallaby-grass	Under	50	Easy
<i>Atriplex semibaccata</i>	Berry Saltbush	Under	30	Easy
<i>Chenopodium desertorum</i> ssp. <i>microphyllum</i>	Small-leaf Goosefoot	Under	30	Easy
<i>Dianella brevicaulis</i>	Short-stem Flax-lily	Under	30	Easy

A restored area on sandy soils using jute matting and cardboard tree guards.

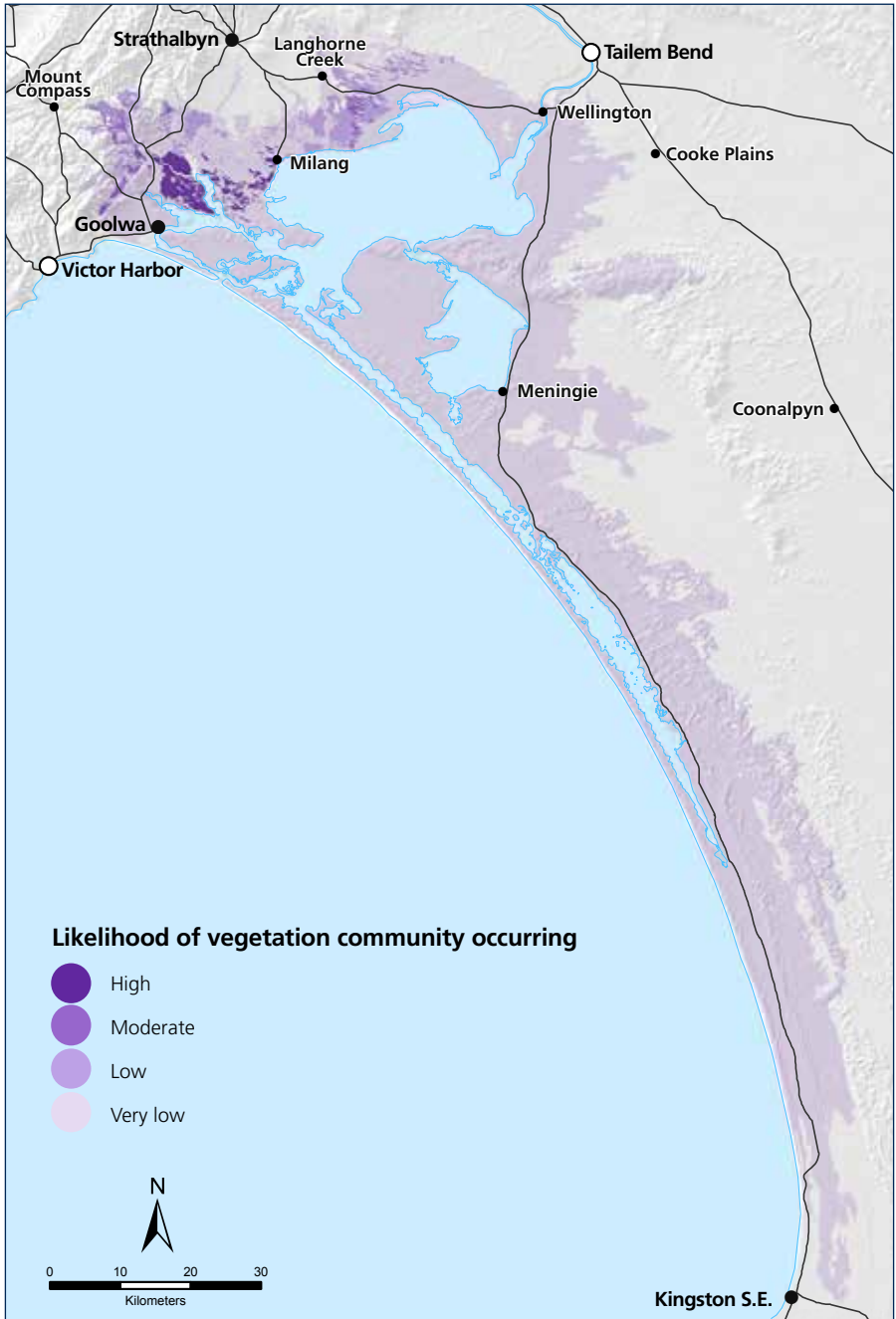


6.3 *Eucalyptus incrassata* (Ridge-Fruited Mallee) / *E. leptophylla* (Narrow Leafed Red Mallee) +/- *E. socialis* (Beaked Red Mallee) Mallee Community ●

This community occurs on sand over clay soils (G1 & G3) and bleached siliceous sand (H3) in the Mt Lofty Ranges. It commonly contains a mixture of *Acacia* spp. and *Melaleuca* spp., while other mallee species such as *Eucalyptus phenax* can co-occur with this vegetation community. Understorey species include *Clematis microphylla*, *Dianella revoluta*, *Rhagodia candolleana*, *Austrostipa* spp., *Lomandra effusa* and *Oxalis perennans*.

Mixed Mallee





Mixed Mallee species list

Species Name	Common Name	Storey	Plants Per Ha	Propagation
<i>Eucalyptus socialis</i> ssp. <i>socialis</i>	Beaked Red Mallee	Over	700	Easy
<i>Eucalyptus leptophylla</i>	Narrow-leaf Red Mallee	Over	600	Easy
<i>Eucalyptus incrassata</i>	Ridge-fruited Mallee	Over	500	Easy
<i>Callitris gracilis</i>	Southern Cypress Pine	Over	400	Easy
<i>Melaleuca lanceolata</i>	Dryland Tea-tree	Over	300	Easy
<i>Eucalyptus phenax</i> ssp. <i>phenax</i>	White Mallee	Over	70	Easy
<i>Eucalyptus fasciculosa</i>	Pink Gum	Over	30	Easy
<i>Bursaria spinosa</i> ssp. <i>spinosa</i>	Sweet Bursaria	Mid	600	Easy
<i>Gahnia lanigera</i>	Black Grass Saw-sedge	Mid	500	Difficult
<i>Leptospermum coriaceum</i>	Dune Tea-tree	Mid	500	Easy
<i>Melaleuca uncinata</i>	Broombush	Mid	500	Easy
<i>Rhagodia crassifolia</i>	Fleshy Saltbush	Mid	350	Easy
<i>Acacia hakeoides</i>	Hakea Wattle	Mid	250	Easy
<i>Calytrix tetragona</i>	Common Fringe-myrtle	Mid	200	Difficult
<i>Phebalium bullatum</i>	Silvery Phebalium	Mid	180	Difficult
<i>Acacia euthycarpa</i>	Wallowa	Mid	100	Easy
<i>Acacia microcarpa</i>	Manna Wattle	Mid	100	Easy
<i>Allocasuarina pusilla</i>	Dwarf Oak-bush	Mid	100	Easy
<i>Acacia pycnantha</i>	Golden Wattle	Mid	70	Easy
<i>Acacia spinescens</i>	Spiny Wattle	Mid	70	Easy
<i>Baeckea crassifolia</i>	Desert Baeckea	Mid	70	Easy
<i>Prostanthera aspalathoides</i>	Scarlet Mintbush	Mid	70	Difficult
<i>Hybanthus floribundus</i> ssp. <i>floribundus</i>	Shrub Violet	Mid	50	Difficult
<i>Olearia ciliata</i> var. <i>ciliata</i>	Fringed Daisy-bush	Mid	50	Easy
<i>Melaleuca acuminata</i> ssp. <i>acuminata</i>	Mallee Honey-myrtle	Mid	30	Easy

Species Name	Common Name	Storey	Plants Per Ha	Propagation
<i>Lomandra effusa</i>	Scented Mat-rush	Under	1000	Difficult
<i>Lomandra juncea</i>	Desert Mat-rush	Under	1000	Difficult
<i>Neurachne alopecuroidea</i>	Fox-tail Mulga-grass	Under	1000	Easy
<i>Dianella revoluta</i> var. <i>revoluta</i>	Black-anther Flax-lily	Under	500	Easy
<i>Glischrocaryon behrii</i>	Golden Pennants	Under	300	Difficult
<i>Pimelea stricta</i>	Erect Riceflower	Under	300	Difficult
<i>Hypolaena fastigiata</i>	Tassel Rope-rush	Under	250	Difficult
<i>Lomandra leucocephala</i> ssp. <i>robusta</i>	Woolly Mat-rush	Under	250	Difficult
<i>Dampiera rosmarinifolia</i>	Rosemary Dampiera	Under	200	Difficult
<i>Billardiera cymosa</i> ssp. <i>cymosa</i>	Sweet Apple-berry	Under	100	Easy
<i>Boronia coerulescens</i> ssp. <i>coerulescens</i>	Blue Boronia	Under	100	Difficult
<i>Halgania cyanea</i>	Rough Blue-flower	Under	100	Difficult
<i>Lepidobolus drapetocoleus</i>	Scale Shedder	Under	100	Difficult
<i>Lomandra collina</i>	Sand Mat-rush	Under	100	Difficult
<i>Pimelea flava</i> ssp. <i>dichotoma</i>	Diosma Riceflower	Under	100	Difficult
<i>Thysanotus patersonii</i>	Twining Fringe-lily	Under	100	Easy
<i>Dianella brevicaulis</i>	Short-stem Flax-lily	Under	70	Easy
<i>Dillwynia hispida</i>	Red Parrot-pea	Under	50	Easy
<i>Clematis microphylla</i>	Old Man's Beard	Under	30	Easy

6.4 *Eucalyptus leucoxylon* (South Australian Blue Gum) Woodland

This vegetation community is found in the Lower Lakes Terrestrial and South East management landscapes in the CLLMM region (Bonifacio *et al.* 2016). SA Blue Gum Woodland is usually found in undulating or hilly terrain on loam soils, including shallow calcareous loam on calcrete (B3), shallow loam over red clay on calcrete (B6), shallow sand on calcrete (B8) and to a lesser extent on deep sand over clay (G3).

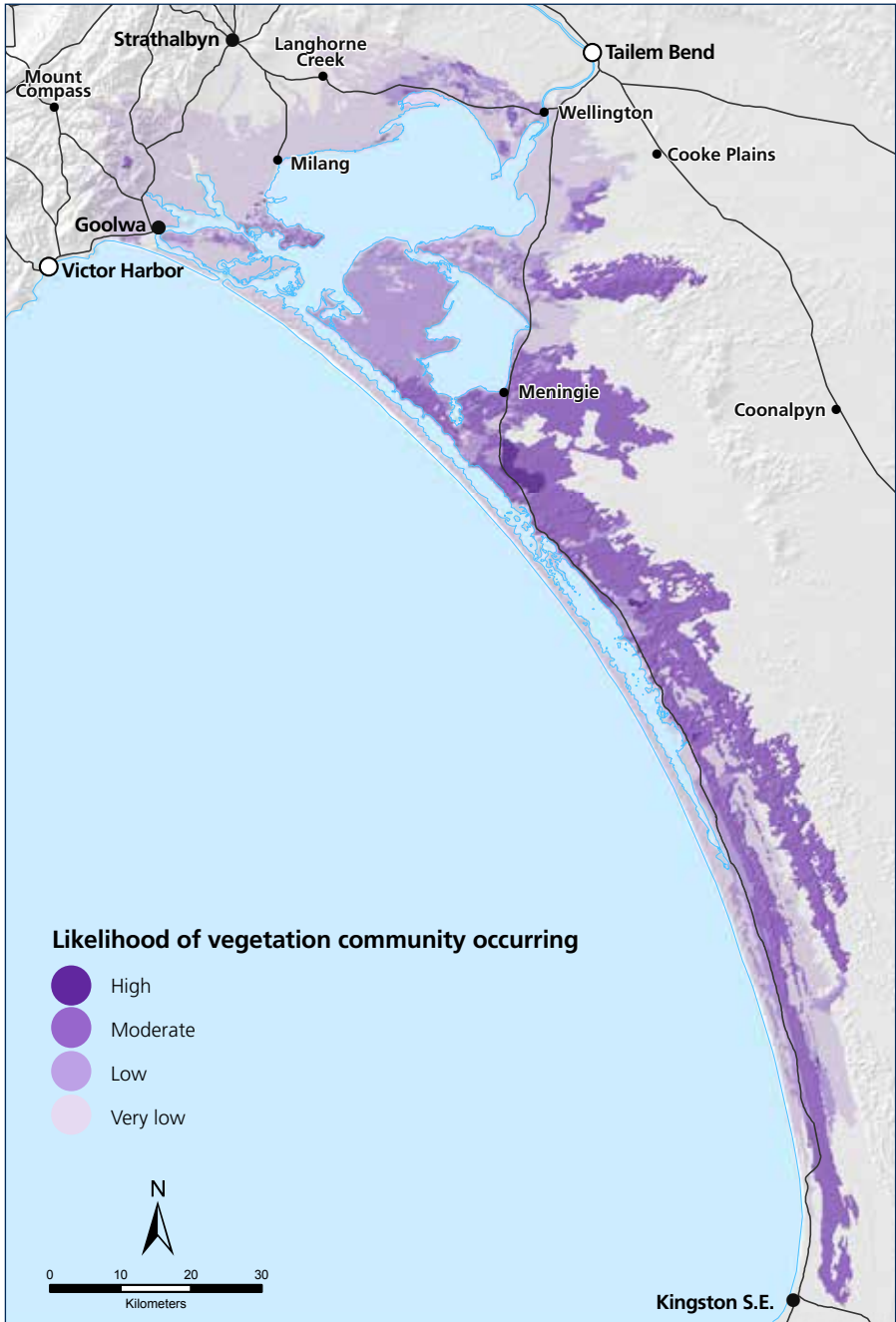
This vegetation community can be found at times associated with overstorey species such as *Eucalyptus cosmophylla*, *E. fasciculosa*, *E. odorata*, *E. diversifolia*, *E. incrassata*, *E. leptophylla* and *Allocasuarina verticillata*. It has a sparsely distributed mid and understorey dominated by grasses and shrubs including *Austrostipa* spp., *Rytidosperma* spp., *Acacia* spp., *Bursaria*

spinosa, *Hakea* spp., *Xanthorrhoea* spp., *Dianella revoluta*, *Dodonaea viscosa*, *Clematis microphylla*, *Oxalis perennans*, *Lomandra effusa* and *Melaleuca* spp.

Note: While *E. leucoxylon* ssp. *stephaniae* is located in the Lower Lakes Terrestrial and South East management landscape, *E. leucoxylon* ssp. *leucoxylon* persists in and around Scott Conservation Park in the Mt Lofty Ranges (Nicolle, 2013). *E. leucoxylon* ssp. *leucoxylon* is found on loam to sandy loam soil over clay on flats and lower slopes in this landscape.

SA Blue Gum Woodland





SA Blue Gum Woodland species list

Species Name	Common Name	Storey	Plants Per Ha	Propagation
<i>Eucalyptus leucoxylon</i>	South Australian Blue Gum	Over	200	Easy
<i>Allocasuarina verticillata</i>	Drooping Sheoak	Over	100	Easy
<i>Xanthorrhoea caespitosa</i>	Sand-heath Yacca	Mid	700	Easy
<i>Acacia pycnantha</i>	Golden Wattle	Mid	500	Easy
<i>Bursaria spinosa</i> ssp. <i>spinosa</i>	Sweet Bursaria	Mid	500	Easy
<i>Banksia marginata</i>	Silver Banksia	Mid	300	Easy
<i>Acacia paradoxa</i>	Kangaroo Thorn	Mid	200	Easy
<i>Acacia dodonaeifolia</i>	Hop-bush Wattle	Mid	100	Easy
<i>Leptospermum myrsinoides</i>	Heath Tea-tree	Mid	100	Easy
<i>Olearia ramulosa</i>	Twiggy Daisy-bush	Mid	100	Easy
<i>Aristida behriana</i>	Brush Wire-grass	Under	1000	Easy
<i>Pimelea humilis</i>	Low Riceflower	Under	1000	Difficult
<i>Rytidosperma caespitosum</i>	Common Wallaby-grass	Under	1000	Easy
<i>Dianella revoluta</i> var. <i>revoluta</i>	Black-anther Flax-lily	Under	500	Easy
<i>Kennedia prostrata</i>	Scarlet Runner	Under	200	Easy
<i>Thomasia petalocalyx</i>	Paper-flower	Under	150	Difficult
<i>Billardiera cymosa</i> ssp. <i>cymosa</i>	Sweet Apple-berry	Under	100	Easy
<i>Clematis microphylla</i>	Old Man's Beard	Under	100	Easy
<i>Lomandra nana</i>	Small Mat-rush	Under	100	Difficult
<i>Microlaena stipoides</i> var. <i>stipoides</i>	Weeping Rice-grass	Under	100	Easy

7. Freshwater Fringing Wetland ●

Predominantly found in wet soils (N3) in inundated areas around the Lower Lakes. The community requires constant or regular inundation and needs to have some tolerance to saline and brackish water. Dominant species in this vegetation community include *Phragmites australis*, *Schoenoplectus tabernaemontani*, *Hydrocotyle verticillata*, *Typha domingensis* and *Juncus kraussii* (Jellinek *et al.* in press).

Note: This vegetation community is generally only associated with N3 (freshwater) soils, while Samphire Swamp is more generally found on N2 (saline) soils.

No map is provided for this vegetation community.

Freshwater Fringing Wetland species list

Species Name	Common Name	Storey	Plants Per Ha	Propagation
<i>Schoenoplectus tabernaemontani</i>	River Club-rush	Over	20000	Easy

Freshwater Fringing Wetland



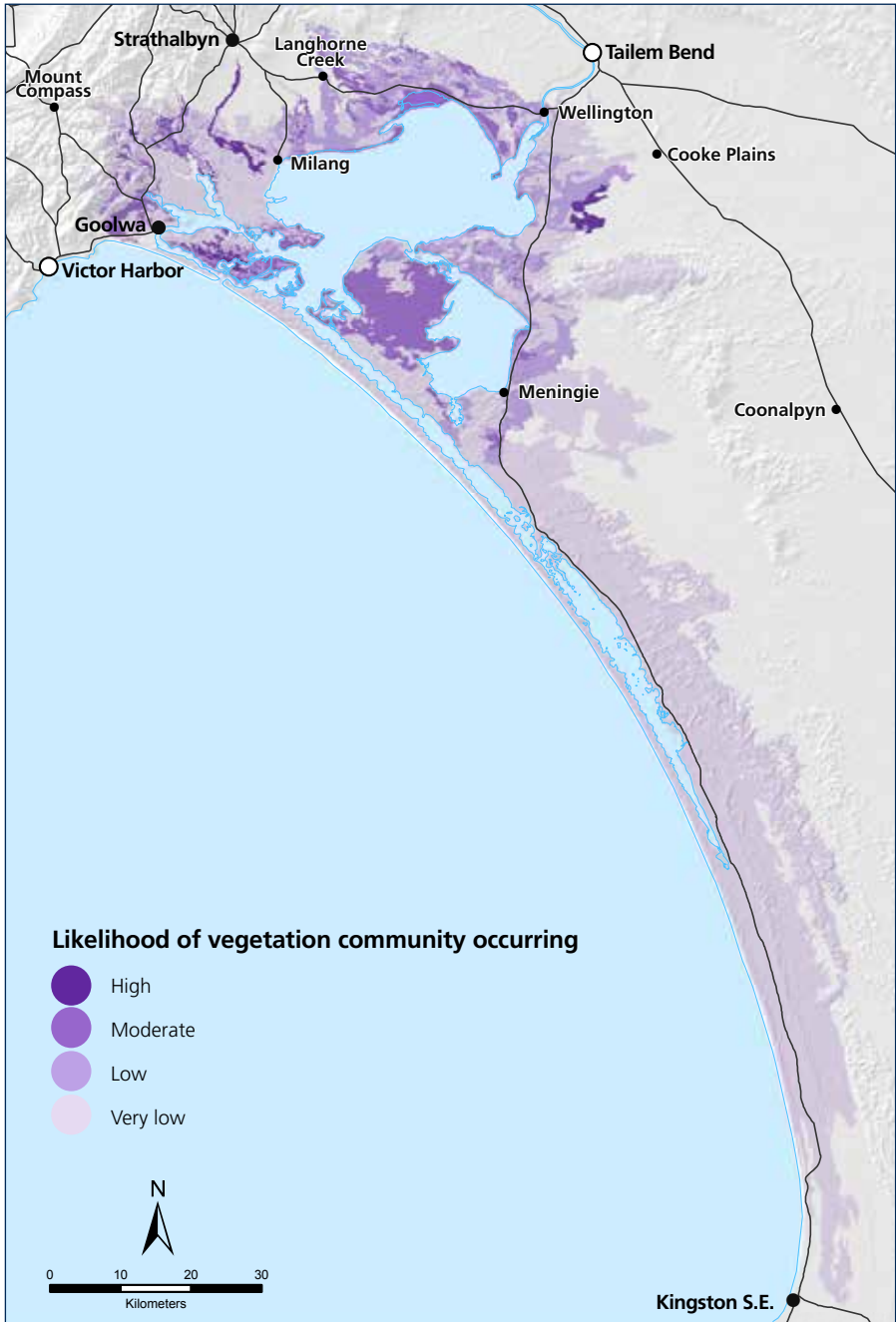
8. *Duma florulenta* (Lignum) Shrubland ●●

This vegetation community is located in the Mt Lofty Ranges and wetter areas around the Lower Lakes. It mainly occurs in wet soils (N3) as well as loam over poorly structured red clay (D3). To a lesser extent it grows on shallow sandy loam on calcrete (B3) and loam over brown or dark clay (F1).

This vegetation community is dominated by *Duma florulenta* along with species that are tolerant of water logging such as *Lagnagrostis filiformis*, *Atriplex semibaccata* and *Distichlis distichophylla*.

Lignum Shrubland







Garland lily (Calostemma purpureum) growing in grassy woodland

Lignum Shrubland species list

Species Name	Common Name	Storey	Plants Per Ha	Propagation
<i>Eucalyptus camaldulensis</i> ssp. <i>camaldulensis</i>	River Red Gum	Over	500	Easy
<i>Duma florulenta</i>	Lignum	Mid	1000	Difficult
<i>Atriplex suberecta</i>	Lagoon Saltbush	Mid	50	Easy
<i>Bolboschoenus caldwellii</i>	Salt Club-rush	Under	1000	Easy
<i>Carex appressa</i>	Tall Sedge	Under	1000	Easy
<i>Eleocharis acuta</i>	Common Spike-rush	Under	1000	Easy
<i>Juncus kraussii</i>	Sea Rush	Under	1000	Easy
<i>Poa labillardieri</i> var. <i>labillardieri</i>	Common Tussock-grass	Under	50	Easy

A revegetated hillside previously used for livestock grazing.





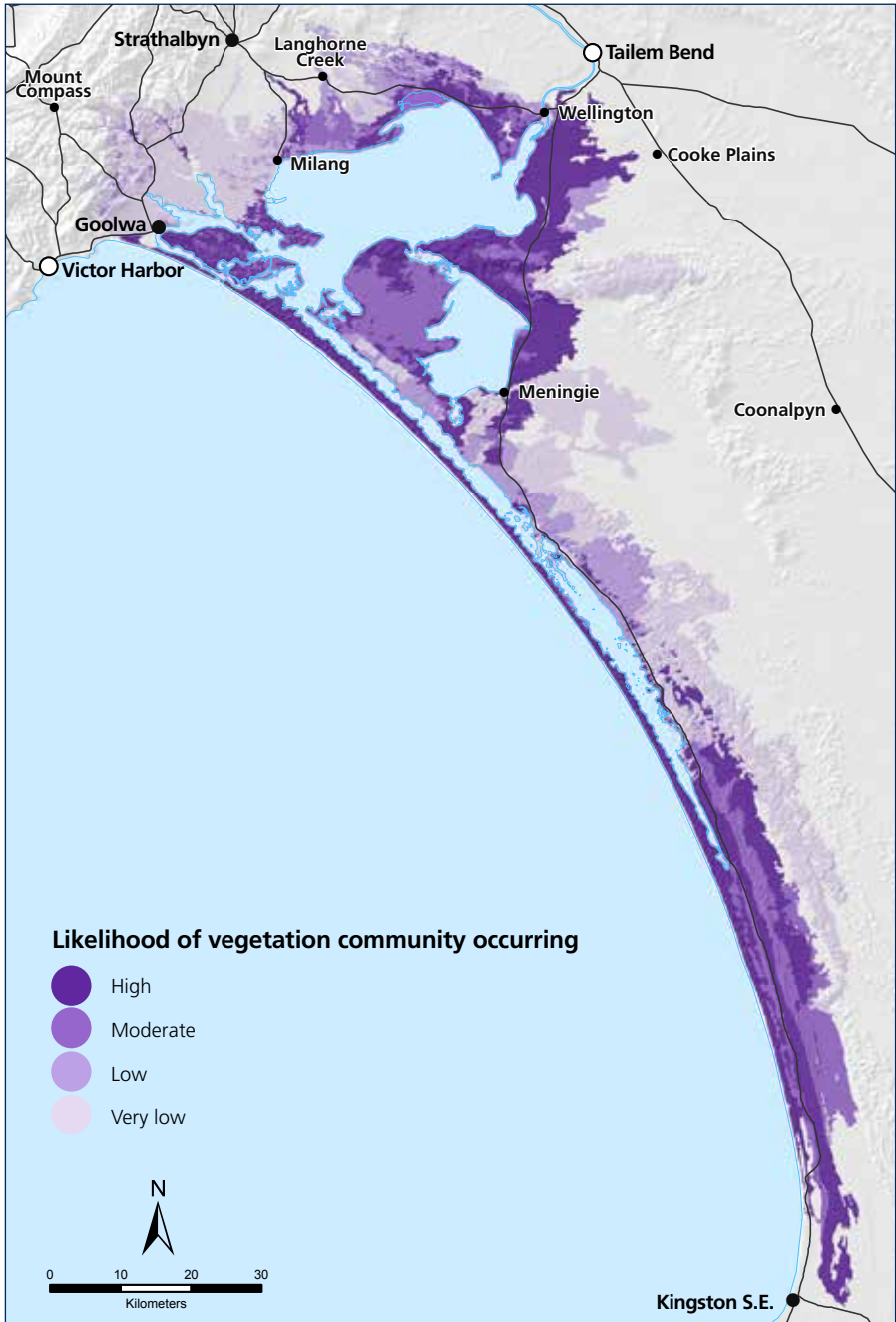
9. Samphire Swamp (including *Melaleuca halmaturorum* Swamp, *Duma florulenta* Low Shrubland and *Gahnia filum* Sedgeland)

This vegetation community can be found in all the CLLMM management landscapes (Bonifacio *et al.* 2016) and across South Australia. It is associated with sub-coastal and semi-saline swamps and wetlands, rivers, estuaries, seasonally inundated depressions and floodplains. It grows on saline clay soil (N2) and to a lesser extent wet soil (N3), but can also grow on sandy clays and deep sands (Hall *et al.* 2009).

Samphire Swamp is found in wet depressions and is usually dominated by *Tecticornia* spp. and surrounded by *Melaleuca halmaturorum* and *Gahnia filum*. *Duma florulenta* may also be a dominant plant species where N3 soils occur. The composition of the plant species associated with this vegetation community is largely dependent on the salinity of the standing water and the quantity of freshwater run-off.

Samphire Swamp





Samphire Swamp species list

Species Name	Common Name	Storey	Plants Per Ha	Propagation
<i>Melaleuca halmaturorum*</i>	Swamp Paper-bark	Over	1000	Easy
<i>Maireana oppositifolia</i>	Salt Bluebush	Mid	500	Easy
<i>Atriplex paludosa</i> ssp. <i>paludosa</i>	Marsh Saltbush	Mid	100	Easy
<i>Lawrenzia spicata</i>	Salt Lawrenzia	Mid	100	Difficult
<i>Disphyma crassifolium</i> ssp. <i>clavellatum</i>	Round-leaf Pigface	Under	1000	Easy
<i>Frankenia pauciflora</i>	Southern Sea-heath	Under	1000	Easy
<i>Puccinellia stricta</i>	Australian Saltmarsh-grass	Under	1000	Easy
<i>Samolus repens</i>	Creeping Brookweed	Under	1000	Difficult
<i>Sarcocornia quinqueflora</i>	Beaded Samphire	Under	1000	Easy
<i>Suaeda australis</i>	Austral Seablite	Under	1000	Easy
<i>Tecticornia arbuscula</i>	Shrubby Samphire	Under	1000	Easy
<i>Tecticornia halocnemoides</i> ssp. <i>halocnemoides</i>	Grey Samphire	Under	1000	Easy
<i>Wilsonia backhousei</i>	Narrow-leaf Wilsonia	Under	1000	Difficult
<i>Bolboschoenus caldwellii</i>	Salt Club-rush	Under	500	Easy
<i>Wilsonia rotundifolia</i>	Round-leaf Wilsonia	Under	300	Difficult
<i>Threlkeldia diffusa</i>	Coast Bonefruit	Under	250	Easy
<i>Wilsonia humilis</i>	Silky Wilsonia	Under	180	Easy
<i>Gahnia filum</i>	Thatching Grass	Under	100	Difficult
<i>Thyridia repens</i>	Creeping Monkey-flower	Under	100	Easy

*Note that the planting distribution of overstorey species such as *Melaleuca halmaturorum* is important to ensure that samphire species are not crowded-out.

A Swamp Paperbark (Melaleuca halmaturorum) planted in a saline area.



10. Expert Opinion Based Vegetation Communities

10.1 *Gahnia filum* (Chaffy Saw-sedge) Sedgeland



This vegetation community is associated with wetlands and is dominated by *Gahnia filum*. It is associated with depressions and may fringe the Samphire Swamp vegetation community. The distribution of this vegetation community is now very limited in the CLLMM landscape. This is mainly a result of the clearance of adjacent terrestrial vegetation, which has raised the saline water table and increased salinity (T. Croft pers. comm.).

Chaffy Saw-sedge Sedgeland





Chaffy Saw-sedge Sedgeland species list

Species Name	Common Name	Storey	Plants Per Ha	Propagation
<i>Atriplex paludosa</i> ssp. <i>paludosa</i>	Marsh Saltbush	Mid	100	Easy
<i>Lawrenzia spicata</i>	Salt Lawrenzia	Mid	100	Difficult
<i>Atriplex suberecta</i>	Lagoon Saltbush	Mid	50	Easy
<i>Disphyma crassifolium</i> ssp. <i>clavellatum</i>	Round-leaf Pigface	Under	1000	Easy
<i>Gahnia filum</i>	Thatching Grass	Under	1000	Difficult
<i>Puccinellia stricta</i>	Australian Saltmarsh-grass	Under	1000	Easy
<i>Samolus repens</i>	Creeping Brookweed	Under	1000	Difficult
<i>Suaeda australis</i>	Austral Seablite	Under	1000	Easy
<i>Wilsonia backhousei</i>	Narrow-leaf Wilsonia	Under	1000	Difficult
<i>Wilsonia rotundifolia</i>	Round-leaf Wilsonia	Under	300	Difficult
<i>Threlkeldia diffusa</i>	Coast Bonefruit	Under	250	Easy
<i>Wilsonia humilis</i>	Silky Wilsonia	Under	180	Easy
<i>Thyridia repens</i>	Creeping Monkey-flower	Under	100	Easy
<i>Poa labillardieri</i> var. <i>labillardieri</i>	Common Tussock-grass	Under	50	Easy

Angular Pigface (Carpobrotus rossii) planted on a dune area.



10.2 *Eucalyptus camaldulensis* ssp. *camaldulensis* (River Red Gum) Grassy Woodland ●

This vegetation community is associated with river floodplains and freshwater swamps (N3 soils), especially those in the Mt Lofty Ranges (Berkinshaw 2009). It has been largely cleared throughout the CLLMM landscape due to the high suitability of this land for agriculture. The overstorey of this vegetation community is dominated by *Eucalyptus camaldulensis* and has a grassy, sedge and rush understorey, including shrubs such as *Duma florulenta*.

Expert knowledge indicates the majority of its distribution is limited to the creek lines of Langhorne Creek, although it is likely to occur in most landscapes where temporary freshwater inundation occurs.

River Red Gum Grassy Woodland





River Red Gum Grassy Woodland species list

Species Name	Common Name	Storey	Plants Per Ha	Propagation
<i>Eucalyptus camaldulensis</i> ssp. <i>camaldulensis</i>	River Red Gum	Over	500	Easy
<i>Duma florulenta</i>	Lignum	Mid	1000	Difficult
<i>Acacia provincialis</i>	Swamp Wattle	Mid	500	Easy
<i>Callistemon rugulosus</i>	Scarlet Bottlebrush	Mid	200	Easy
<i>Callistemon sieberi</i>	River Bottlebrush	Mid	200	Easy
<i>Leptospermum continentale</i>	Prickly Tea-tree	Mid	200	Easy
<i>Leptospermum lanigerum</i>	Silky Tea-tree	Mid	200	Easy
<i>Carex appressa</i>	Tall Sedge	Under	1000	Easy
<i>Eleocharis acuta</i>	Common Spike-rush	Under	1000	Easy
<i>Cyperus gymnocaulos</i>	Spiny Flat-sedge	Under	500	Easy
<i>Gahnia trifida</i>	Cutting Grass	Under	500	Difficult
<i>Juncus kraussii</i>	Sea Rush	Under	500	Easy
<i>Chorizandra enodis</i>	Black Bristle-rush	Under	50	Difficult
<i>Poa labillardieri</i> var. <i>labillardieri</i>	Common Tussock-grass	Under	50	Easy



A Red Mallee (*Eucalyptus socialis*) grassy woodland

10.3 Grasslands

This vegetation community has largely been cleared in the CLLMM landscape and only a few examples of what it may have resembled remain in the Lower Lakes Terrestrial management landscape.

It is composed of tussock grass species including *Lomandra effusa*, *Austrostipa* spp., *Rytidosperma* spp. and *Poa* spp.

Grasslands



Grasslands species list

Species Name	Common Name	Storey	Plants Per Ha	Propagation
<i>Aristida behriana</i>	Brush Wire-grass	Under	1000	Easy
<i>Austrostipa eremophila</i>	Rusty Spear-grass	Under	1000	Easy
<i>Enneapogon nigricans</i>	Black-head Grass	Under	1000	Easy
<i>Lomandra effusa</i>	Scented Mat-rush	Under	1000	Difficult
<i>Rytidosperma caespitosum</i>	Common Wallaby-grass	Under	1000	Easy
<i>Dianella revoluta</i> var. <i>revoluta</i>	Black-anther Flax-lily	Under	500	Easy
<i>Lomandra multiflora</i> ssp. <i>dura</i>	Hard Mat-rush	Under	500	Difficult
<i>Themeda triandra</i>	Kangaroo Grass	Under	500	Easy
<i>Vittadinia cuneata</i> var. <i>cuneata</i>	Fuzzy New Holland Daisy	Under	500	Easy
<i>Austrostipa nodosa</i>	Tall Spear-grass	Under	300	Easy
<i>Wahlenbergia luteola</i>	Yellow-wash Bluebell	Under	200	Easy
<i>Austrostipa elegantissima</i>	Feather Spear-grass	Under	150	Easy
<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>	Ruby Saltbush	Under	100	Easy



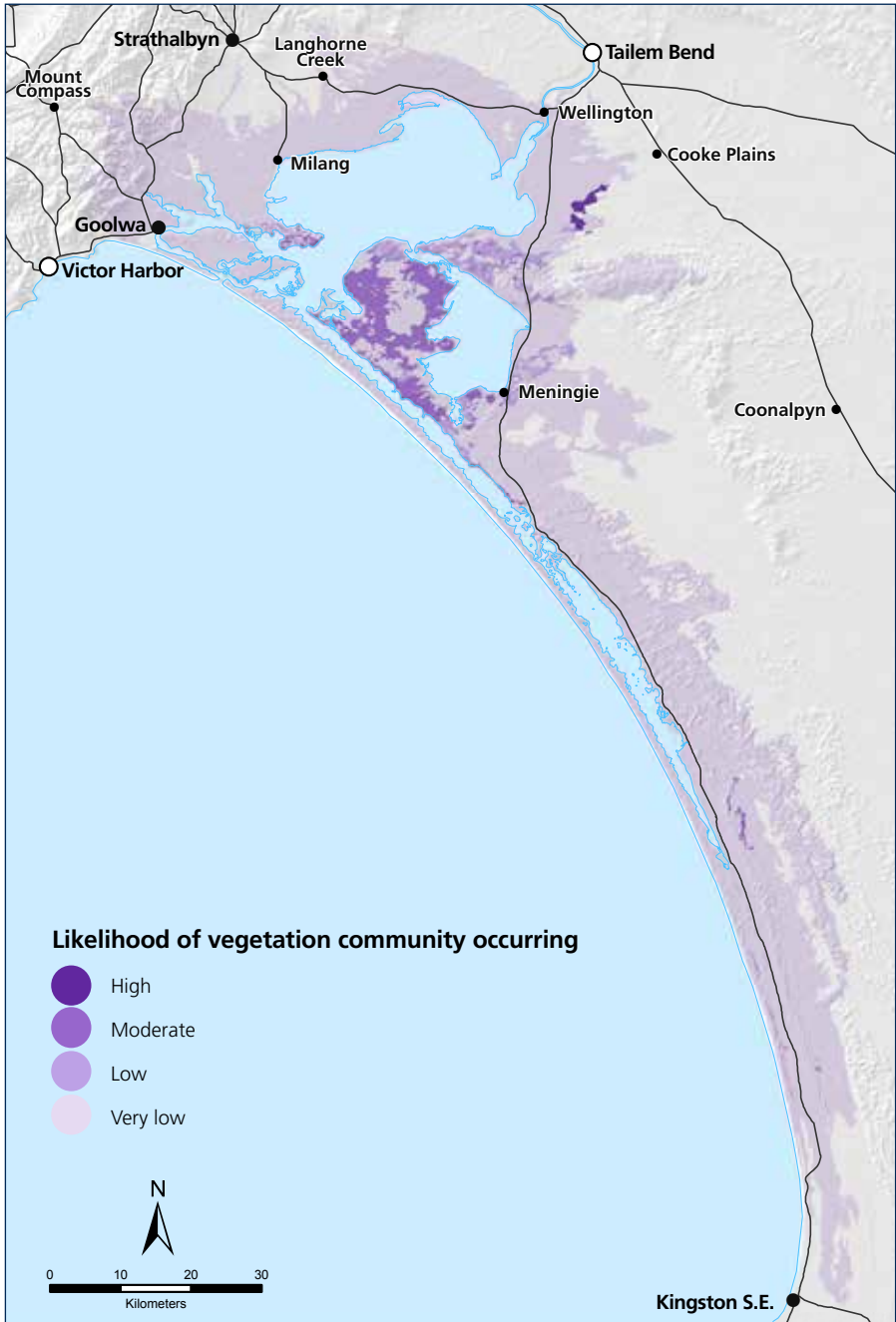
10.4 Non-Eucalypt (*Allocasuarina verticillata* and *Callitris gracilis*) Woodland

Found in the Lower Lakes Terrestrial and South East management landscape in the CLLMM region (Bonifacio *et al.* 2016) this vegetation community is associated with gently undulating sub-coastal plains and dunes as well as the slopes of low hills (Berkinshaw, 2009). It grows on shallow sandy loam soils over calcrete (B3).

In the CLLMM region, Non-Eucalypt Woodland is dominated by *Allocasuarina verticillata* and/or *Callitris gracilis* with a sparsely distributed mid and understorey dominated by grasses and shrubs including *Austrostipa* spp., *Rytidosperma* spp., *Acacia* spp., *Bursaria spinosa*, *Hakea* spp., *Xanthorrhoea* spp., *Dianella revoluta*, *Dodonaea viscosa*, *Clematis microphylla*, *Oxalis perennans*, *Lomandra effusa* and *Melaleuca* spp.

Non-Eucalypt Woodland





Non-Eucalypt Woodland species list

Species Name	Common Name	Storey	Plants Per Ha	
<i>Callitris gracilis</i>	Southern Cypress Pine	Over	500	Easy
<i>Allocasuarina verticillata</i>	Drooping Sheoak	Over	100	Easy
<i>Eucalyptus diversifolia</i> ssp. <i>diversifolia</i>	Coastal White Mallee	Over	70	Easy
<i>Pittosporum angustifolium</i>	Native Apricot	Over	50	Easy
<i>Xanthorrhoea caespitosa</i>	Sand-heath Yacca	Mid	800	Easy
<i>Rhagodia candolleana</i> ssp. <i>candolleana</i>	Sea-berry Saltbush	Mid	200	Easy
<i>Dodonaea viscosa</i> ssp. <i>spatulata</i>	Sticky Hop-bush	Mid	100	Easy
<i>Acacia pycnantha</i>	Golden Wattle	Mid	70	Easy
<i>Acacia leiophylla</i>	Coast Golden Wattle	Mid	50	Easy
<i>Bursaria spinosa</i> ssp. <i>spinosa</i>	Sweet Bursaria	Mid	30	Easy
<i>Daviesia arenaria</i>	Sand Bitter-pea	Mid	30	Easy
<i>Rytidosperma caespitosum</i>	Common Wallaby-grass	Under	1000	Easy
<i>Rytidosperma fulvum</i>	Leafy Wallaby-grass	Under	1000	Easy
<i>Lomandra juncea</i>	Desert Mat-rush	Under	900	Difficult
<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>	Ruby Saltbush	Under	500	Easy
<i>Senecio spanomerus</i>		Under	500	Easy
<i>Dianella brevicaulis</i>	Short-stem Flax-lily	Under	400	Easy
<i>Austrostipa nodosa</i>	Tall Spear-grass	Under	300	Easy
<i>Helichrysum leucopsideum</i>	Satin Everlasting	Under	250	Easy
<i>Austrostipa elegantissima</i>	Feather Spear-grass	Under	200	Easy
<i>Austrostipa trichophylla</i>		Under	200	Easy
<i>Kunzea pomifera</i>	Muntries	Under	100	Easy
<i>Lomandra nana</i>	Small Mat-rush	Under	50	Difficult
<i>Vittadinia australasica</i> var. <i>australasica</i>	Sticky New Holland Daisy	Under	50	Easy
<i>Amphipogon caricinus</i> var. <i>caricinus</i>	Long Grey-beard Grass	Under	30	Easy
<i>Enneapogon nigricans</i>	Black-head Grass	Under	30	Easy
<i>Austrostipa mollis</i>	Soft Spear-grass	Under	20	Easy
<i>Dillwynia hispida</i>	Red Parrot-pea	Under	20	Easy



Non-Eucalypt Woodland

References

BERKINSHAW, T. 2009. *Mangroves to mallee: The complete guide to the vegetation of temperate South Australia*, South Australia, Greening Australia.

BONIFACIO, R. S., HOBBS, T. J., ROGERS, D., JELLINEK, S., WILLOUGHBY, N. & THOMPSON, D. 2016. The identification and assessment of ecosystems within the Coorong, Lower Lakes and Murray Mouth (CLLMM) Region - An application of the Landscape Assessment Framework In: Department of Environment, Water and Natural Resources. Adelaide, South Australia: DEWNR.*

BUTCHER, C. & ROGERS, D. 2013. Conservation Planning in the CLLMM Region. Phase I: A Description of the Landscapes of the CLLMM Region. South Australian Department for Environment, Water and Natural Resources, Adelaide.*

DWLBC SOIL AND LAND PROGRAM 2007. Regional Land Resource Information for Southern South Australia. South Australia: Department of Water, Land and Biodiversity Conservation.

HALL, J., MASCHMEDT, D. & BILLING, N. B. 2009. The Soils of Southern South Australia, Government of South Australia, The South Australian Land and Soil Book Series, Volume 1; Geological Survey of South Australia, Bulletin 56, Volume 1. Department of Water, Land and Biodiversity Conservation.

JELLINEK, S., TE, T., GEHRIG, S., STEWART, H. & NICOL, J. In Press. Facilitating the restoration of aquatic plant communities in a Ramsar wetland. *Restoration Ecology*.

MCDONALD, R. C., ISBELL, R. F., SPEIGHT, J. G., WALKER, J. & HOPKINS, M. S. 1998. *Australian Soil and Land Survey Field Handbook*, Canberra, Australian Collaborative Land Evaluation Program.

MILNE, T. & TELFER, S. 2014. Floristic Survey of Poorly Known Remnant Vegetation communities and Revegetation in the Coorong, Lower Lakes and Murray Mouth Region. EAC Ecological Evaluation for the Department of Environment, Water and Natural Resources. Adelaide, South Australia.

NICOLLE, D. 2013. *The Eucalypts of South Australia*, South Australia, Lane Print & Post.

*Available on the Enviro Data SA website (data.environment.sa.gov.au)

Disclaimer

While reasonable efforts have been made to ensure the contents of this publication are factually correct, the Department of Environment, Water and Natural Resources makes no representations and accepts no responsibility for the accuracy, completeness or fitness for any particular purpose of the contents, and shall not be liable for any loss or damage that may be occasioned directly or indirectly through the use of or reliance on the contents of this publication.

Reference to any company, product or service in this publication should not be taken as a Departmental endorsement of the company, product or service.

Permissive licence

© State of South Australia through the Department of Environment, Water and Natural Resources. Apart from fair dealings and other uses permitted by the Copyright Act 1968 (Cth), no part of this publication may be reproduced, published, communicated, transmitted, modified or commercialised without the prior written approval of the Department of Environment, Water and Natural Resources.

Written requests for permission should be addressed to:

Communications Manager
Department of Environment,
Water and Natural Resources
GPO Box 1047 Adelaide SA 5001

Prepared by:

Dr Sacha Jellinek and Mr Thai Te
CLLMM Recovery Project Vegetation Program,
Major Projects Department of Environment,
Water and Natural Resources
Government of South Australia
PO Box 1047
ADELAIDE SA 5001

www.environment.sa.gov.au

Copies of the report can be obtained from:

T: +61 (8) 8204 1910
E: DEWNRCLLMM@sa.gov.au
www.environment.sa.gov.au

© Department of Environment, Water and Natural Resources, June 2016 | FIS 93785

ABN 36702093234
ISBN 978-1-921800-25-2

Citation

JELLINEK, S. & TE, T. 2016. A guide to restoring vegetation in the Coorong, Lower Lakes and Murray Mouth Region, Adelaide, South Australia., CLLMM Recovery Project Vegetation Program, Department of Environment, Water and Natural Resources.



Government
of South Australia



Australian Government