

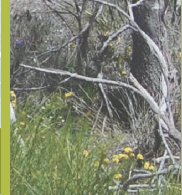
## Appendix eight: GRFVS plant communities

8. Coastal: *Acacia rostellifera* low shrubland (cAr)

Coastal *Acacia rostellifera* low shrubland occurs close to the coast, from behind the foredunes to various distances inland but generally on primary dunes. *Myoporum insulare*, *Olearia axillaris*, *Scaevola crassifolia* and *Spinifex longifolius* are other characteristic species of this plant community.

A variant of this community, shown in Plate A8.8.4, is dominated by *Melaleuca huegelii*, and occurs near the southern end of Tarcoola Beach. Small areas of *Melaleuca lanceolata*, illustrated in Plate A8.8.5, are another variant within this community. Both of these variants also show affinities with plant community 10 Near Coastal: *Acacia rostellifera* shrubland.

<b>Area in GRFVS:</b>	<b>% of GRFVS area:</b>	<b>Quadrats:</b>	GRV0801, 03, 05, 16, 46, 50
546.25 ha	8.86	(6)	
<b>NVIS description:</b>	Shrubland, Open Shrubland, Open Chenopod Shrubland, Open Vineland, Open Tussock Grassland		
<b>Keighery description:</b>	Shrubland, Low Shrubland, Open Shrubland, Open Heath		
<b>Muir description:</b>	Low Scrub B, Open Low Scrub B, Heath B		
The following common species were recorded:			
<b>Tall shrubs:</b>	<i>*Lycium ferocissimum</i>		
<b>Mid shrubs:</b>	<i>Acacia rostellifera</i> , <i>Myoporum insulare</i> , <i>Olearia axillaris</i> , <i>Rhagodia preissii</i> subsp. <i>obovata</i> , <i>Scaevola crassifolia</i> , <i>Stylobasium spathulatum</i>		
<b>Low shrubs:</b>	<i>Rhagodia latifolia</i> subsp. <i>recta</i> , <i>Tetragonia implexicoma</i> , <i>Threlkeldia diffusa</i> , <i>Zygophyllum fruticosum</i>		
<b>Climbers:</b>	<i>Clematis linearifolia</i>		
<b>Grasses:</b>	<i>Austrostipa elegantissima</i> , <i>*Ehrharta longiflora</i> , <i>Spinifex longifolius</i>		
<b>Herbs:</b>	<i>Acanthocarpus preissii</i> , <i>*Anagallis arvensis</i> , <i>*Brassica tournefortii</i> , <i>Calandrinia polyandra</i> , <i>Carpobrotus virescens</i> , <i>*Euphorbia terracina</i> , <i>*Reichardia tingitana</i> , <i>*Sonchus oleraceus</i>		
<b>Landform:</b>	Gentle slope, dune  Quindalup soil system, in the following subsystems, both of which are deep Aeolian calcareous sand and minor limestone:		
<b>Geology:</b>	<ul style="list-style-type: none"> <li>• Quindalup Central 1 frontal plain Phase soil subsystem: 221Qu_1Qs1 low lying plain adjoining foredune or beach</li> <li>• Quindalup Central stable parabolic dune Phase1 soil subsystem: 221Qu_1Qp1 low stable parabolic dunes with relief 5-15 m.</li> </ul>		
<b>Surface rock:</b>	None		
<b>Soil:</b>	White sand		
<b>% Cover leaf litter:</b>	10-90	<b>% Cover bare ground:</b>	2-50
<b>% Weed cover:</b>	2-10		



## Appendix eight: GRFVS plant communities

### Notes:

This plant community occurs along the entire coastline of GRFVS area where there is existing native vegetation.

Further inland from the Coastal *Acacia rostellifera* low shrubland plant community, the vegetation is taller, often has less species and has been determined to be a different plant community (10 Near Coastal: *Acacia rostellifera* shrubland). However the boundary between these plant communities is not clear and often grades from one to the other.

Floristically this group is closely allied with the other coastal and near coastal plant communities, and can be differentiated by the generally low stature (<2m high) of the dominant species (*Acacia rostellifera*), and the frequent occurrence of *Myoporum insulare*, *Olearia axillaris*, *Carpobrotus virescens*, *Scaevola crassifolia* and *Spinifex longifolius*, which are generally not found further inland. In areas without these characteristic species, the vegetation is more likely to be plant community 10 Near Coastal: *Acacia rostellifera* shrubland.



Plate A8.8.1: Photo direction: SE  
Location: GRV0801, Glenfield Beach  
Photographer: L Atkins



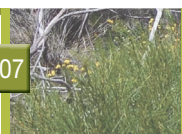
Plate A8.8.2: Photo direction: SE  
Location: GRV0846, Cape Burney  
Photographer: L Atkins



Plate A8.8.3: Photo direction: E  
Location: 263695 E, 6835412 N,  
Oakajee  
Photographer: J. Nelson



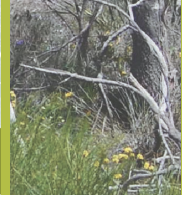
Plate A8.8.4: Photo direction: S  
Location: 268510 E, 6809147N, Tarcoola  
Beach  
Photographer: J. Nelson



## Appendix eight: GRFVS plant communities



Plate A8.8.5: Photo direction: N  
Location: 263784 E, 6813595N,  
Point Moore  
Photographer: J. Nelson



## Appendix eight: GRFVS plant communities

### 9. Coastal: *Acacia rostellifera* / *Eucalyptus* spp. (Ar/Essp)

The Coastal *Acacia rostellifera* / *Eucalyptus* spp. plant community occurs on coastal sand. The *Eucalyptus* species are commonly the mallees *E. oraria* and *E. obtusiflora*, singly or in combination. Floristically this community is allied with the other *Acacia rostellifera* communities but is differentiated on structure, being dominated by mallee eucalypts.

**Area in GRFVS:** 12.47 ha      **% of GRFVS area:** 0.20      **Quadrats:** (1)      GRV0828

**NVIS description:** Closed Mallee Forest

**Keighery description:** Closed Tree Mallee

**Muir description:** Dense Tree Mallee

The following common species were recorded:

**Mallees:** *Eucalyptus obtusiflora*, *Eucalyptus oraria*

**Tall shrubs:** *Acacia rostellifera*

**Mid shrubs:** *Ptilotus divaricatus*

**Low shrubs:** *Zygophyllum fruticosum*

**Climbers:** *Clematis linearifolia*

**Grasses:** \**Bromus diandrus*, \**Ehrharta brevifolia* var. *cuspidata*

**Herbs:** \**Euphorbia peplus*, \**Euphorbia terracina*

**Landform:** Flat dune

**Geology:** Quindalup Central 1 swale Phase soil subsystem: 221Qu\_1Qs2, gently undulating plains surrounded by parabolic dunes. Calcareous deep sand. Geology: Aeolian calcareous sands and minor limestone

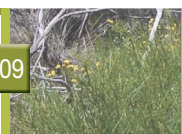
**Surface rock:** None

**Soil:** White sand

**% Cover leaf litter:** 60      **% Cover bare ground:** 0-40

**% Weed cover:** 80

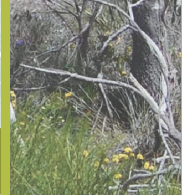
**Notes:** Despite extensive survey, this plant community has only been found in one part of the GRFVS area, between Tarcoola Beach and the Greenough River.



## Appendix eight: GRFVS plant communities



Plate A8.9: Photo direction: SE  
Location: GRV0828, Southgate  
Photographer: L. Atkins



## Appendix eight: GRFVS plant communities

### 10. Near Coastal: *Acacia rostellifera* shrubland (ncAr)

Near Coastal: *Acacia rostellifera* shrubland occurs on taller secondary dunes, and on exposed limestone and sandplain soils to the east where this community is often a result of disturbance.

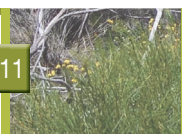
On the sandplain soils, the community probably formerly included *Banksia prionotes* but has been reduced to a simpler community dominated by *Acacia rostellifera* by clearing or grazing.

*Acacia rostellifera* is usually the dominant species, however *Acacia xanthina*, *Alyxia buxifolia* or *Chamelaucium uncinatum* may be dominant or co-dominants in this community.

<b>Area in GRFVS:</b>	<b>% of GRFVS area:</b>	<b>Quadrats:</b>	GRV0802, 12, 17, 19, 30, 31, 32, 48, 51, 52, 54, 57, 73, 74
2258.87 ha	36.63	(14)	
<b>NVIS description:</b>	Sparse Shrubland, Open Shrubland, Shrubland, Closed Shrubland		
<b>Keighery description:</b>	Open Shrubland, Tall Open Shrubland, Tall Open Scrub, Tall Shrubland, Closed Tall Scrub		
<b>Muir description:</b>	Open Scrub, Open Low Scrub, Scrub, Thicket, Dense Thicket		

The following common species were recorded:

<b>Tall shrubs:</b>	<i>Acacia rostellifera</i> , <i>Acacia xanthina</i> , <i>Alyxia buxifolia</i> , <i>Anthocercis littorea</i> , <i>Chamelaucium uncinatum</i> , <i>*Lycium ferocissimum</i> , <i>Pimelea microcephala</i> subsp. <i>microcephala</i> , <i>Pittosporum ligustrifolium</i>		
<b>Mid shrubs:</b>	<i>Rhagodia preissii</i> subsp. <i>obovata</i> , <i>Scaevola crassifolia</i> , <i>Stylobasium spathulatum</i>		
<b>Low shrubs:</b>	<i>Muehlenbeckia adpressa</i> , <i>Tetragonia implexicoma</i> , <i>Threlkeldia diffusa</i>		
<b>Climbers:</b>	<i>Cassytha flava</i> , <i>Clematis linearifolia</i> , <i>Commicarpus australis</i>		
<b>Grasses:</b>	<i>Austrostipa elegantissima</i> , <i>*Avena barbata</i> , <i>*Bromus diandrus</i> , <i>*Ehrharta longiflora</i> , <i>*Pennisetum setaceum</i>		
<b>Herbs:</b>	<i>Acanthocarpus preissii</i> , <i>*Brassica tournefortii</i> , <i>*Euphorbia peplus</i> , <i>*Euphorbia terracina</i> , <i>*Reichardia tingitana</i> , <i>*Sonchus oleraceus</i>		
<b>Landform:</b>	Gentle dune, slope or ridge, flat hilltop or valley, steep riverbank		
<b>Geology:</b>	Quindalup or Tamala soil systems, on Aeolian calcareous sand or lithified Pleistocene limestone with overlying calcareous sands		
<b>Surface rock:</b>	None or up to 2% limestone		
<b>Soil:</b>	White, grey, yellow or orange sand, orange clayey sand		
<b>% Cover leaf litter:</b>	0-90	<b>% Cover bare ground:</b>	0-80
<b>% Weed cover:</b>	2-60		



## Appendix eight: GRFVS plant communities

**Notes:**

This plant community merges with the lower plant community 8 Coastal: *Acacia rostellifera* shrubland closer to the coast and plant community 13 Sandplain: *Banksia prionotes* / *Acacia rostellifera* on the sandplain to the east.

Near Coastal: *Acacia rostellifera* shrubland occurs on taller dunes and along higher river banks, where there is often some exposed limestone. One of the quadrat sites, close to the Greenough River, had surface soil consisting of a significant proportion of snail shells. *Acacia rostellifera* is a colonising species, which is probably the reason it dominates in disturbed areas.

Appendix eight: GRFVS plant communities



Plate A8.10.1: Photo direction: SE  
Location: GRV0819, Oakajee  
Photographer: L. Atkins



Plate A8.10.2: Photo direction: SE  
Location: GRV0848, Greenough River  
Photographer: L. Atkins



Plate A8.10.3: Photo direction: SE  
Location: GRV0852, Greenough  
Photographer: L. Atkins



Plate A8.10.4: Photo direction: SE  
Location: GRV0854, Buller  
Photographer: L. Atkins

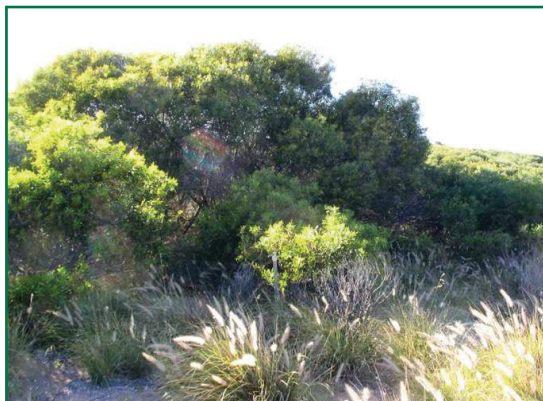


Plate A8.10.5: Photo direction: SE  
Location: GRV0873, Rudds Gully  
Photographer: L. Atkins



Plate A8.10.6: Photo direction: S  
Location: 266483 E, 6825390 N,  
Glenfield Beach  
Photographer: L. Atkins



## Appendix eight: GRFVS plant communities

11. Limestone Ridge: *Melaleuca cardiophylla* / *Eucalyptus* spp. (Mc/Espp)

The plant community *Melaleuca cardiophylla* / *Eucalyptus* spp. occurs on limestone ridges and slopes. Floristically it is closely allied with the *Melaleuca cardiophylla* plant community on limestone soils, but is separated structurally due to the presence of the mallees including *Eucalyptus obtusiflora* and *E. oraria*, which in places form dense stands, and *E. zopherophloia*.

**Area in GRFVS:** 19.95 ha      **% of GRFVS area:** 0.32      **Quadrats:** (2)      GRV0827, 61

**NVIS description:** Mallee Woodland, Open Mallee Woodland, Shrubland, Sparse Shrubland

**Keighery description:** Open Shrub Mallee, Very Open Tree Mallee

**Muir description:** Open Shrub Mallee, Very Open Tree Mallee

The following common species were recorded:

**Mallees:** *Eucalyptus obtusiflora*, *E. oraria*, *E. zopherophloia*

**Tall shrubs:** *Alyogyne hakeifolia*, *Grevillea argyrophylla*, \**Lycium ferocissimum* *Melaleuca cardiophylla*, *Melaleuca huegelii*, *Pittosporum ligustrifolium*

**Mid shrubs:** *Lasiopetalum angustifolium*

**Low shrubs:** *Rhagodia latifolia* subsp. *recta*, *Zygophyllum fruticosum*

**Grasses:** *Austrostipa elegantissima*, \**Avena barbata*, \**Bromus diandrus*, \**Pennisetum setaceum*

**Herbs:** \**Anagallis arvensis* \**Brassica tournefortii*, \**Euphorbia peplus*, \**Hypochoeris glabra*, \**Medicago polymorpha*, *Oxalis perennans*, \**Petrorhagia dubia*

**Landform:** Gentle slope, steep ridge

Tamala soil system in the following subsystems:

- Tamala South 2 steep rocky slopes Phase soil subsystem: 221Ta\_2Tst, steep dune slopes with very common limestone outcrop. Shallow (10-50 cm) uniform brownish sands, non-calcareous. Geology: Pleistocene limestone and Aeolian sand.
- Tamala South 5 shallow sand Phase soil subsystem: 221Ta\_5Ts, undulating to gently undulating relict dune crests with shallow sand and common limestone rock outcrop. Shallow red and brown sands. Geology: lithified Pleistocene calcareous dune deposits and recent calcareous sand.

**Geology:**

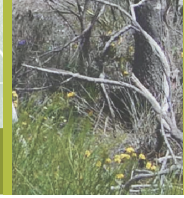
**Surface rock:** Up to 5% exposed limestone, with fragments 10-40 cm.

**Soil:** Grey sand, grey loamy sand.

**% Cover leaf litter:** 3-50      **% Cover bare ground:** 25-40

**% Weed cover:** 10-40

**Notes:** Two quadrats of this plant community were recorded from the GRFVS area, but it occurs in other small remnant patches and a larger area on the limestone scarp north of the Buller River. It has been observed south of the GRFVS area.



## Appendix eight: GRFVS plant communities



Plate A8.11.1: Photo direction: SE  
Location: GRV0827, Wandina  
Photographer: L. Atkins



Plate A8.11.2: Photo direction: SE  
Location: GRV0861, Rudds Gully  
Photographer: C. Krens

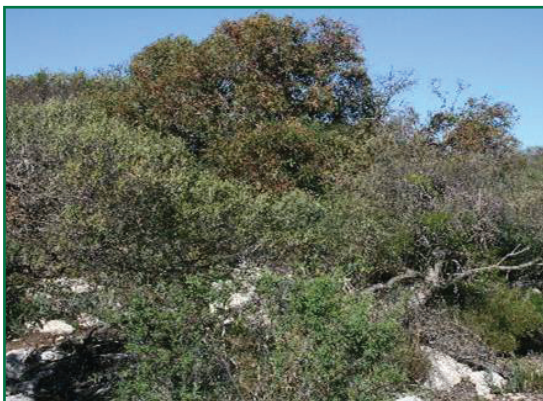


Plate A8.11.3: Photo direction: S  
Location: 273510 E, 6806924 N,  
Rudds Gully  
Photographer: J. Nelson



Plate A8.11.4: Photo direction: SE  
Location: 269412 E, 6809472 N,  
Wandina  
Photographer: J. Nelson

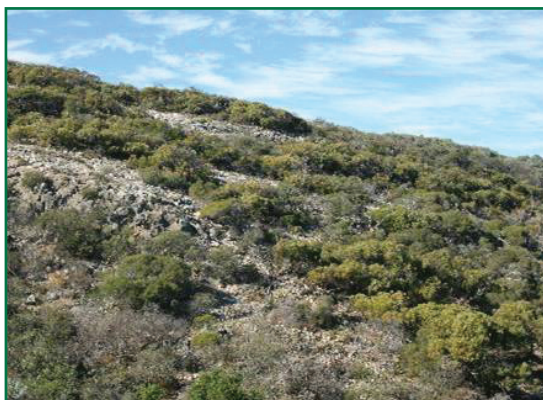


Plate A8.11.5: Photo direction: SE  
Location: 266027 E, 6831351 N, Buller  
Photographer: J. Nelson



## Appendix eight: GRFVS plant communities

12. Limestone Ridge: *Melaleuca cardiophylla* (rMc)

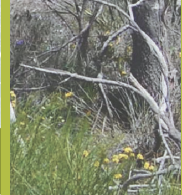
Limestone ridge *Melaleuca cardiophylla* occurs on limestone ridges and slopes high in the landscape. *Acacia xanthina* dominated one of the GRFVS floristic quadrats, but in general *Melaleuca cardiophylla* was the dominant species, with *Diplolaena grandiflora*, *Grevillea argyrophylla*, \**Lycium ferocissimum* and *Pittosporum ligustrifolium* commonly occurring.

Individual mallees, most commonly *Eucalyptus obtusiflora* and *E. oraria*, are occasional inclusions; however, where these occur in extensive stands, the plant community becomes 11 Limestone Ridge: *Melaleuca cardiophylla* / *Eucalyptus* spp.

<b>Area in GRFVS:</b>	<b>% of GRFVS area:</b>	<b>Quadrats:</b>	GRV0813, 20, 21, 29, 43, 56, 66, 67, 68
865.80 ha	14.04	(9)	
<b>NVIS description:</b>	Sparse Shrubland, Sparse Vineland, Sparse Chenopod Shrubland, Sparse Forbland, Open Shrubland, Shrubland, Closed Shrubland		
<b>Keighery description:</b>	Tall Open Scrub, Open Heath, Tall Shrubland, Closed Tall Scrub		
<b>Muir description:</b>	Open Scrub, Scrub, Thicket, Heath B, Dense Thicket		

The following common species were recorded:

<b>Tall shrubs:</b>	<i>Acacia xanthina</i> , <i>Diplolaena grandiflora</i> , <i>Grevillea argyrophylla</i> , * <i>Lycium ferocissimum</i> , <i>Melaleuca cardiophylla</i> , <i>Pittosporum ligustrifolium</i> , <i>Santalum acuminatum</i>
<b>Mid shrubs:</b>	<i>Rhagodia preissii</i> subsp. <i>obovata</i> , <i>Scaevola tomentosa</i>
<b>Low shrubs:</b>	<i>Melaleuca campanae</i> , <i>Ptilotus divaricatus</i> , <i>Ptilotus obovatus</i> , <i>Rhagodia latifolia</i> subsp. <i>recta</i> , <i>Zygophyllum fruticosum</i>
<b>Climbers:</b>	<i>Aphanopetalum clematideum</i> , <i>Dioscorea hastifolia</i> ,
<b>Sedges and rushes:</b>	<i>Desmocladus asper</i>
<b>Grasses:</b>	<i>Austrostipa elegantissima</i> , * <i>Avena barbata</i> , * <i>Bromus diandrus</i>
<b>Herbs:</b>	* <i>Anagallis arvensis</i> , * <i>Brassica tournefortii</i> , * <i>Hypochaeris glabra</i> , * <i>Medicago polymorpha</i> , * <i>Petrorrhagia dubia</i> ,
<b>Landform:</b>	Gentle, flat or steep, slope, dune, ridge or hilltop Tamala soil system, on the following subsystems: <ul style="list-style-type: none"> <li>• Tamala South 2 steep rocky slopes Phase soil subsystem: 221Ta_2Tst, steep dune slopes with very common limestone outcrop. Shallow (10-50 cm) uniform brownish sands, non-calcareous. Geology: Pleistocene limestone and Aeolian sand.</li> </ul>
<b>Geology:</b>	<ul style="list-style-type: none"> <li>• Tamala South 3 yellow Sandplain Phase soil subsystem: 221Ta_3Ysp, level to undulating Sandplain. Yellow deep sand. Geology: lithified Pleistocene calcareous dune deposits with recent dunes.</li> <li>• Tamala South 5 shallow sand Phase soil subsystem: 221Ta_5Ts, undulating to gently undulating relict dune crests with shallow sand and common limestone rock outcrop. Shallow red and brown sands. Geology: lithified Pleistocene calcareous dune deposits and recent calcareous sand.</li> </ul>



## Appendix eight: GRFVS plant communities

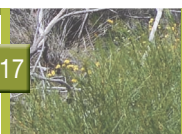
<b>Surface rock:</b>	2-30% exposed limestone, 10-100cm fragments		
<b>Soil:</b>	Grey sand, orange-grey sand, grey loamy sand, grey sandy loam, orange brown sandy loam		
<b>% Cover leaf litter:</b>	10-95	<b>% Cover bare ground:</b>	5-35
<b>% Weed cover:</b>	<1-50		
<b>Notes:</b>	<p>Many areas of this plant community are grazed by cattle, and in most cases this has led to low cover of shrub species and a high weed cover.</p> <p>This community would have been the most common plant community on exposed Tamala limestone ridges, but some areas have been reduced to a simpler community dominated by <i>Acacia rostellifera</i> (plant community 10 Near Coastal: <i>Acacia rostellifera</i> shrubland), which it sometimes merges with.</p> <p>Limestone Ridge <i>Melaleuca cardiophylla</i> shrublands occurs from the Buller locality northwards, high on the first and second ridges from the coast where there is exposed limestone capping, and on the limestone ridges of Mt Tarcoola and south-eastwards through Rudds Gully and Jandanol Park.</p> <p>This plant community corresponds with the Beard vegetation association 387: <i>Melaleuca cardiophylla</i> thicket, however the scale of the Beard mapping was too broad to detect this unit in the GRFVS project area, where it often occupies narrow bands on the ridgetops.</p>		



Plate A8.12.1: Photo direction: SE  
Location: GRV0813, Oakajee  
Photographer: L. Atkins



Plate A8.12.2: Photo direction: SE  
Location: GRV0821, Oakajee  
Photographer: L. Atkins



## Appendix eight: GRFVS plant communities



Plate A8.12.3: Photo direction: SE  
Location: GRV0866, Jandanol Park  
Photographer: L. Atkins



Plate A8.12.4: Photo direction: SE  
Location: GRV0867, Jandanol Park  
Photographer: L. Atkins



Plate A8.12.5: Photo direction: SE  
Location: GRV0868, Jandanol Park  
Photographer: L. Atkins