

Coastal Vegetation Structure Rapid Assessment

West Beach (Surf Club) to Semaphore
Park (Bower Rd)

Spring 2024



DOCUMENT INFORMATION	
Client:	Green Adelaide
Issue date:	2/4/2024
Version:	1.2
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Title	Partner

DOCUMENT HISTORY	
Version	Issue Date
1.0 DRAFT	21/1/2025
1.1 DRAFT	1/4/2025
1.2 FINAL	30/4/2025

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Table of Contents

1. INTRODUCTION.....	4
1.1 Assessment Purpose	4
1.2 Assessment Overview	4
1.3 Assessment Method.....	5
2. Observations Summary	7
2.1 General observations summary	7
2.2 Key Observations	8
2.3 Key risks and threats	8
2.4 Opportunities for Improvement:	9
3. Assessment sections and cell descriptions.....	11
3.1 Section: West Beach to Torrens Outlet.....	11
3.1.1 Key features:	11
3.1.2 Key risks:	11
3.1.3 Opportunities:	12
3.1.4 Table- Vegetation description, threats and opportunities, West Beach to Torrens Outlet.....	14
3.1.5 Table- Summary of presence absence in cells, West Beach to Torrens Outlet.	19
4.1 Torrens Outlet to Grange Jetty.....	21
Cells Assessed:	21
4.1.1 Key Features:.....	21
4.1.2 Key risks:	21
4.1.3 Opportunities:	21
4.1.4 Table- Vegetation description, threats and opportunities, Torrens Outlet North to Grange Jetty.	23
4.1.5 Table- Summary of presence absence in cells, Torrens Outlet to Grange Jetty.....	29
5.1 Grange to Tennyson Dunes	31
5.1.1 Key Features:.....	31
5.1.2 Key Risks:	31
5.1.3 Opportunities:	31
5.1.4 Table- Vegetation description, threats and opportunities, Grange to Tennyson Dunes.	33
5.1.5 Table- Summary of presence absence in cells, Grange to Tennyson Dunes.	37
6.1 Tennyson to Bower Road, Semaphore Park.....	39
6.1.1 Key features:	39
6.1.2 Key risks:	39

6.1.3 Opportunities:	39
6.1.4 Table -Vegetation Description, threats and opportunities, Grange Jetty to Tennyson Dunes.	41
6.1.5 Table- Summary of presence absence in cells, Tennyson to Bower Road.	48
7. Discussion.....	50
7.1 Conclusion	50
8. References	51
Appendix 1: Site survey - species presence absence list per cell.....	52
Appendix 2: Blank Datasheet.	60

1. INTRODUCTION

1.1 Assessment Purpose

This Rapid Assessment of coastal habitat “character” and composition, conducted from August to October 2024, aimed to compare the structure and diversity of coastal vegetation, identify revegetation priorities and areas for improvement. The assessments undertaken along the coast from West Beach to Semaphore Park, are a snapshot from a point in time, with the dry season likely restricting the growth or presence of native annual flora such as *Daucus glochidiatus* (Native Carrot), *Geranium retrorsum* (Grassland Geranium), *Calandrinia eremaea* (Dryland Purslane), and *Crassula spp.* (Stonecrops), *Parietaria debilis* (Shade Pellitory) etc.

Objectives considered in the assessments include:

- Vegetation structure.
- Identifying risks (e.g., regeneration of certain species, and population health of species, weeds).
- Identifying missing floral community elements.
- Highlighting opportunities and their locations.
- Providing general weed observations per Cell.

1.2 Assessment Overview

The assessment covered four sections along the coast:

1. West Beach (surf club) to Torrens Outlet (South), 1.15km.
2. Torrens Outlet (North) to Grange Jetty, 3.68km.
3. Grange to Tennyson Dunes, 2.1km.
4. Tennyson to Bower Road, Semaphore Park, 3.8km.

Each section was divided into 8–12 cells, totaling 44 cells in all. These varied in type, ranging from narrow, elongated, or structureless areas (e.g., Henley Jetty stretch, Cell 9, Semaphore Park) to moderately wide dunes with minor swales around 30–40 meters. Others featured expansive, intact remnant vegetation on consolidated dunes with large or multiple swales exceeding 60 meters in width (e.g., Tennyson Dunes).

1.3 Assessment Method

- A species list derived from the Tennyson Dunes was used as a benchmark species list¹ to create a simple datasheet (Appendix 2).
- Presence absence was marked when a species was observed in a Cell.
- Site images for each cell were captured, including threats, good plantings etc. with the Context Cam iPhone App.
- Vegetation community structure and compositions noted with reference to the benchmarks in the Bushland Assessment Method.
- Notes on key risks and threats - weed threats, erosion, pest animals, lack of species diversity.
- Opportunities for improvements with reference to planting location and structure; foredune, primary crest, back of primary crest, swales, secondary dune and back dune².

¹ Endacott, M (2024) Species list for assessments.



Figure 1. Rapid Assessment Sections West Beach to Semaphore Park.

2. Observations Summary

2.1 General observations summary

- The majority of cells have greater native cover than weed cover.
- Flora diversity is highest in the remnant sections of Tennyson Dunes and several wider cells in the *Torrens Outlet to Grange* area.
- The most common species across most cells include: *Olearia axillaris* (Coast Daisy-bush), *Acacia longifolia* ssp. *sophorae* (Coastal Wattle), *Acacia cupularis* (Cup Wattle), Medium to tall shrubland over sedges such as *Ficinia nodosa*, *Dianella brevicaulis* (Short-stem Flax-lily), and *Spinifex hirsutus* (Rolling Spinifex).
- Many wider dune cells have a species composition that aligns with historical vegetation records (Fenner & Cleland, 1935) and benchmark community descriptions (Kraehenbuehl, 1996).
- Some areas have reached a tipping point, showing strong seedling recruitment of *Olearia axillaris* (Coastal Daisy-bush) and *Acacia longifolia* ssp. *sophorae* (Coastal Wattle), alongside smaller shrubs and annuals such as *Lotus australis* (Austral Trefoil) and *Pelargonium australe* (Austral Stork's-bill).
- Remnant and planted areas within wider dunes, deeper swales, or the south to southeast sides of large shrubs (e.g., *Acacia longifolia* ssp. *sophorae*, *Myoporum insulare* (Common Boobialla)) have good moss cover.
- Many wider dunes feature excellent organic matter accumulation under larger shrubs, creating favourable growing conditions along the edges.
- Most dunes contain some *Spinifex* plantings or natural establishment, except in areas where sand has recently been replenished in the foredune.
- Weed cover is relatively low across the entire assessment area.
- Some weed species persist in low numbers, including: *Acacia cyclops* (Western Coastal Wattle), *Gaudium laevigatum* (Coast Tea-tree), *Asparagus asparagoides* (Bridal Creeper), *Lycium ferocissimum* (African Box Thorn) – noted as very common in (Fenner & Cleland, 1935).
- In some wider cells, common and easy-to-plant species have been established in high densities, though overall species diversity remains low.
- Overuse of questionable species in certain areas; *Acacia nematophylla* (Coast Wallowa), *Chrysocephalum apiculatum* (Common Everlasting).

Table 1. Native flora species diversity count comparison between sections in all cells assessed.

Section	Species diversity counts per cell											
	1	2	3	4	5	6	7	8	9	10	11	12
West Beach to Torrens Outlet	25	17	15	18	22	18	15	21	22	23	26	19
Torrens Outlet to Grange Jetty	22	26	18	14	10	22	21	16	19	18	19	16
Grange Jetty to Tennyson Dunes	15	20	14	18	20	13	14	15	-	-	-	-
Tennyson Dunes to Semaphore Park (Bower Rd)	36	52	24	31	16	21	18	18	19	18	21	22

*Highlighted cells are the widest sections of dunes with a lot of remnant species

2.2 Key Observations

- Successful establishment of rarer species *Picris squarrosa* (Squat Picris) and seed recruitment is occurring in remnant populations in the Tennyson Dunes.
- Some *Leucopogon parviflorus* (Coast Bearded-heath) have also been successfully established in some in the dune swales West Beach and Tennyson Dunes sections.
- In areas where woody weeds have been managed and good native vegetation structure occur, other native species have been able to recolonise such as; *Olearia axillaris* (Coast Daisy-bush) + *Acacia longifolia* ssp. *sophorae* (Coastal Wattle) and *Muehlenbeckia gunnii* (Coastal Climbing Lignum). And is a good demonstration of how habitat values can be increased by using existing landscape features and follow up weed management.
- Potentially remnant Quandongs thriving near Torrens outlet, presents an opportunity for other locations.

2.3 Key risks and threats

- Re emergent weeds from soil seed bank of **Gaudium laevigatum* (Coast Tea-tree), **Lycium ferocissimum* (African Box Thorn) and **Euphorbia paralias* (Sea Spurge)/ **Euphorbia terracina* (False Caper) and *Acacia cyclops* (Western Coastal Wattle), **Gazania* sp. (Gazania).
- Certain species have been planted in the wrong locations i.e. *Dodonaea viscosa* ssp. *spatulata* (Sticky Hopbush) against the foredune and *Atriplex cinerea* (Coast Saltbush) in the secondary dunes.
- Overuse of common species when suitable vegetation composition has been achieved. (some of the West Beach and Tennyson south areas).
- Low structural diversity in some cells providing inadequate habitat potential to increase local biodiversity – particularly invertebrates (pollinators) in some areas.
- Weedy grasses *Cenchrus clandestinus* (Kikuyu) and *Cynodon dactylon* var. *dactylon* (Couch), entering dunes via drains.
- Narrow dunes <5m wide and erosion from seasonal weather events.
- Weedy garden escapes a constant threat Grange to Tennyson areas; succulents.
- Other aggressive weeds such as **Arctotis stoechadifolia* (White Arctotis) north of Grange Jetty.
- Weedy **Carpobrotus edulis* (Hottentot fig) planted in some parts of the dunes compromising any remnant *Carpobrotus rossii* (Pigface) cross pollination. Also, potential risk of being collected and propagated again.
- Pest Fauna; Low number of rabbits continuing to threaten natural seedling recruitment in some cells.
- Fox still active in areas of greater vegetation cover.
- Possible spraying of native species which appear or are similar to weeds; *Salsola australis* (Buckbush), *Portulaca oleracea* (Munyeroot), *Picris squarrosa* (Squat Picris).
- **Ehrharta villosa* var. *maxima* (Pyp Grass) spreading further in the Grange dunes area.
- Planted introduced Australian species e.g. – *Banksia integrifolia*, *Westringia fruticosa* (Road verge) and various other Australian native cultivars.

2.4 Opportunities for Improvement:

- Focus on companion planting species; such as *Tetragonia implexicoma* (Bower Spinach) and *Leucopogon parviflorus* (Coastal Bearded-heath) together or into existing patches of established vegetation except where seedling recruitment is occurring.
- Increase butterfly habitat and host plants: *Austrostipa* spp. (Spear Grasses) to provide more habitat potential for the vulnerable Cynone Grass Skipper. Planting *Cassytha pubescens* (Downy Dodder-laurel) a host plant of the *Erina Acasta* (Blotched Dusky-blue).³
- Rare grass / herb species introductions i.e.; *Poa fax* (Scaly Poa), *Actites megalocarpa* (Dune Thistle). Seek further guidance from the Seed Conservation Centre.
- Increase diversity by planting rare plants in clusters; *Poa fax* (Scaly Poa), particularly in wider dune swales or into nitrogen load of *Acacia* spp. (Wattles) i.e. Planting *Leucopogon parviflorus* (Coastal Bearded Heath) into *Acacia longifolia* ssp. *sophorae* (Coastal Wattle) patches or leaf litter. Utilise Seed Conservation Centre and encourage local growers through 'nursery support program'.
- Improve understanding of sub surface geology and hydrology to improve plant placement, for example there are some signs of subsurface limestone at Tennyson where the *Alyxia buxifolia* (Sea Box) occurs.
- Companion plant smaller annuals in protected areas with existing moss cover.
- Planting clumps of 0.5m-1m apart, *Lomandra leucocephala* ssp. *leucocephala* (Woolly Mat-rush) in wider dunes with consolidated sands on low mounds, with good shrub protection.
- Increase plantings of *Lepidosperma gladiatum* cover in deeper swales, or in drains with *Machaerina juncea* (Bare Twig-rush) in drains.
- Use of rabbit proof micro exclosures used to protect more sensitive species when established and for seedlings. Guarding seedling recruitment, similar (TFL – 'Paddock tree project').
- Introduce Mistletoe and create small groves of mistletoe host plants; *Amyema melaleucae* (Tea-tree) on *Melaleuca lanceolata* (Dryland Tea-tree) stands and *Lysiana exocarpi* (Harlequin Mistletoe) onto *Acacia* spp. (Wattles) or *Allocasuarina verticillata* (Drooping Sheoak).
- Continue incremental management of invasive weeds —including **Euphorbia paralias* (sea spurge), **Ammophila* spp. (marram grass), **Thinopyrum junceiforme* (sea wheatgrass), and **Ehrharta villosa* (Pyp grass)—to support the *Thinornis rubricollis rubricollis* (Eastern Hooded Plover)⁴.
- Planting into dense patches of *Spinifex hirsutus* (Rolling Spinifex) with other perennial shrubs. Look at introducing *Atriplex australasica* (Native Orache) with *Atriplex cinerea* (Coastal Saltbush) where there is weed build up in the sand profile.

³ Butterfly Conservation South Australia Inc. (2024) Blotched Dusky-blue.

<https://butterflyconservationsa.net.au/butterfly/blotched-dusky-blue/>

⁴ Conservation Advice for *Thinornis rubricollis rubricollis* (eastern hooded plover)

<https://www.environment.gov.au/biodiversity/threatened/species/pubs/66726-conservation-advice.pdf>

- Stop planting *Acacia nematophylla* (Coast Wallowa) and replace with relevant species. Trial drill and fill to leave dead standing for nitrogen and planting climbers and twiners next to them.
- Infill plantings of less commonly occurring species; *Pimelea serpyllifolia* ssp. *serpyllifolia* (Thyme Riceflower), *Alyxia buxifolia* (Sea Box), *Adriana quadripartita* (Coastal Bitter Bush) Refer to lists in Appendix 1.
- Potential to increase *Senecio spanomerus* (Native Groundsel) that will assist in the reintroduction of *Orobanche cernua* var. *Australiana* (Australian Broomrape) Discuss with Seed Conservation Centre.
- Council to inform households about 'Gazania sp. (Gazania) control and assist in removing plants 'Gazania free gardens', through the Green Adelaide 'Coastal Gardens and Gazania free / weed swap programs'⁵.

⁵ Green Adelaide Coastal gardens planting and design guides <https://www.greenadelaide.sa.gov.au/resources>

3. Assessment sections and cell descriptions

3.1 Section: West Beach to Torrens Outlet

Cells Assessed: 12 Cells, 1.15km

Cell	1	2	3	4	5	6	7	8	9	10	11	12
Species diversity count	25	17	15	18	22	18	15	21	22	23	26	19

3.1.1 Key features:

- High diversity plantings in Cell 1, and is irrigated.
- Wide dunes – 7 Cells > 50m wide, with some deeper swales.
- Rarer plants have been introduced in Cell 1-12 - *Picris squarrosa* (Squat Picris), *Leucopogon parviflorus* (Coast Beard-heath) as well as *Lomandra leucocephala* ssp. *leucocephala* (Woolly Mat-rush), *Pimelea serpyllifolia* ssp. *serpyllifolia* (Thyme Riceflower).
- *Gazania* has been targeted recently.
- Fencing to help Hooded Plover and Red-Capped Plovers.
- Wide enough sections with deep swales with moss.
- *Leucopogon parviflorus* (Coast Beard-heath) planted in sections 1-9⁶. However, noted as only surviving in 1, 2 & 9. Note: *Picris squarrosa* (Squat Picris) occurs in more cells, than the two sighted in and *Helichrysum leucopsidium* (Satin Everlasting) has been planted this year (2024/25)⁷.

3.1.2 Key risks:

- Narrow sections at risk of erosion.
- Low diversity through the middle section.
- Overuse of common species such as; *Acacia longifolia* var. *sophorae* (Coastal Wattle) and *Myoporum insulare* (Common Boobialla), *Olearia axillaris* (Coast Daisy-bush).
- Limited understorey diversity through some of the wider dunes.
- Key weed threats missed under larger shrubs.
- Missing some key vines, twining species such as; *Tetragonia implexicoma* (Bower Spinach), *Cassytha pubescens* (Downy Dodder-laurel).
- Poor dune structures or narrow sections reducing survival of introduced rarer species. i.e.; *Alyxia buxifolia* (Sea Box) has died in Cell 3.
- **Thinopyrum* sp. (Sea Wheat-Grass) presence is a risk to the hooded plover in this area.
- **Cynodon dactylon* var. *dactylon* (Couch Grass) needs to be sprayed before revegetation occurs.
- Road verge area needs *Gazania* sp. (*Gazania*) control.
- Council plantings on foot path are not native to the area. If native plants were planted then there would be better diversity/seed set etc. No need for irrigation or black mulch.

⁶ Endacott, M. (2025) *Pers comm.* *Leucopogon parviflorus* (Coast Beard-heath) planted in sections 1-9.

⁷ Endacott, M. (2025) *Pers comm.* *Picris squarrosa* (Squat Picris) and *Helichrysum leucopsidium* (Satin Everlasting).

- Peoples view being blocked. Council should have a policy in place to not remove native plants for residents.
- Questionable native - *Acacia nematophylla* (Coast Wallowa) over planted, potential to become weedy in this environment. Noted as not likely occurring here by South Australian Herbarium *Acacia* expert.

3.1.3 Opportunities:

- Key focus to plant *Tetragonia implexicoma* (Bower Spinach), and companion plant *Leucopogon parviflorus* (Coast Beard-heath).
- Utilise the large drain for planting salt-tolerant species like *Atriplex australasica* (Native Orache) & *Samolus repens* (Creeping Brookweed) once **Cenchrus clandestinus* (Kikuyu Grass) has been controlled.
- Plant small groves of *Santalum acuminatum* (Quandong) with suitable host plants *Acacia longifolia* ssp. *sophorae* (Coastal Wattle), *Acacia cupularis* (Cup Wattle), *Acacia ligulata* (Umbrella Bush).
- Plant *Lomandra leucocephala* ssp. *leucocephala* (Woolly Mat-rush) with annuals like *Geranium retrorsum* (Grassland Geranium).
- Introduce *Cassytha pubescens* (Downy Dodder-laurel) in Cells 7–11 as a trial for the Blotched Dusky-blue butterfly.
- Infill planting locally rarer shrubs in swales and moss-covered areas. *Leucopogon parviflorus* (Coast Beard-heath), *Pimelea serpyllifolia* ssp. *serpyllifolia* (Thyme Riceflower) see Table 2.
- Use of rabbit proof micro exclosures used to protect more sensitive species when established and for seedling recruitment.
Guarding seedling recruitment, similar (TFL – ‘Paddock tree project’).

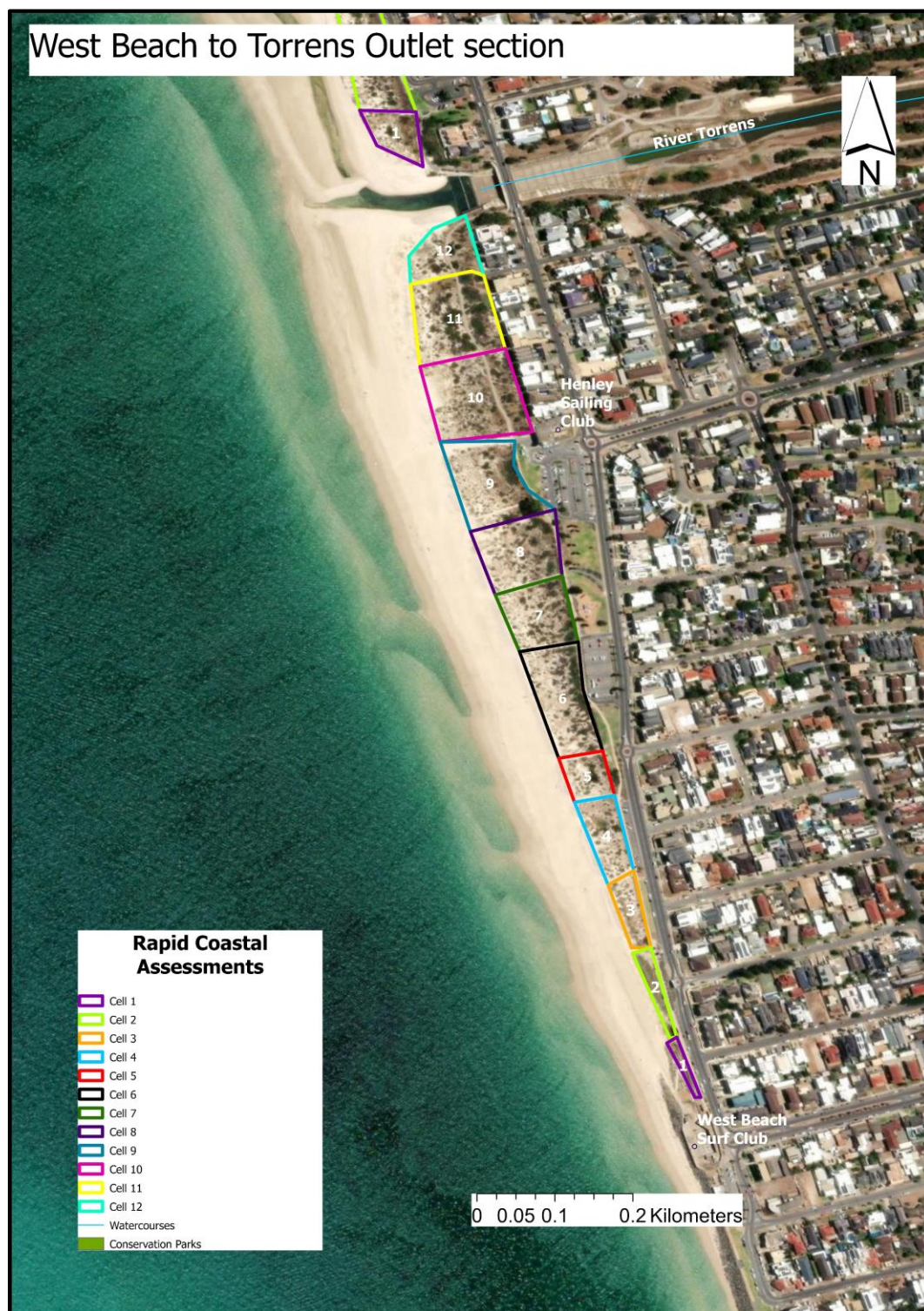


Figure 2. West Beach to Torrens Outlet section.

3.1.4 Table- Vegetation description, threats and opportunities, West Beach to Torrens Outlet

Cell	Cell description, vegetation and comment	Risks/ Threats - weeds/ pests erosion	Planting opportunities/ composition & where
1	<ul style="list-style-type: none"> <i>Olearia axillaris</i> (Coast Daisy-bush) Open shrubland over <i>Ficinia nodosa</i> (Knobby Clubbrush), <i>Spinifex hirsutus</i> (Rolling Spinifex), very narrow approx. 5m wide at widest point. Recruitment of <i>Pelargonium australe</i> (Austral Stork's-bill) 	<ul style="list-style-type: none"> Weeds – planted <i>*Carpobrotus edulis</i> (Hottentot fig), <i>*Erigeron bonariensis</i> (Fleabane) Erosion 	<ul style="list-style-type: none"> Follow-up with smaller species where required More <i>Olearia axillaris</i> (Coast Daisy-bush)
2	<ul style="list-style-type: none"> Sparsely planted <i>Spinifex hirsutus</i> (Rolling Spinifex) foredune densely planted section with some <i>Ficinia nodosa</i>, <i>Olearia axillaris</i> (Coast Daisy-bush), <i>Atriplex cinerea</i> (Coast Saltbush) 	<ul style="list-style-type: none"> Weeds - <i>*Gazania</i> sp. (Gazania) under <i>Acacia</i> spp. not picked up, persisting under other shrubs. Low species diversity with limited ecological service/ function potential 	<ul style="list-style-type: none"> Cluster planting interdunes <i>Pimelea serpyllifolia</i> ssp. <i>serpyllifolia</i> (Thyme Riceflower) into swales and secondary dunes. Plant small shrubs/ Annuals - <i>Lotus australis</i> (Austral Trefoil), <i>Helichrysum leucopsideum</i> (Satin Everlasting) into swales or shade with leaf litter Replace controlled Couch with some <i>Distichlis distichophylla</i> (Emu Grass)
3	<ul style="list-style-type: none"> <i>Olearia axillaris</i> (Coast Daisy-bush) Open Shrubland with <i>Rhagodia candolleana</i> ssp. <i>candolleana</i> (Sea-berry Saltbush) and dense <i>Spinifex hirsutus</i> (Rolling Spinifex). 	<ul style="list-style-type: none"> Weeds – <i>*Cynodon dactylon</i> var. <i>dactylon</i> (Couch grass), <i>*Gazania</i> sp. (Gazania) not picked up during weeding, persisting under <i>Acacia</i> spp. (Wattles) and other shrubs. Low species diversity with limited ecological service/ function potential 	<ul style="list-style-type: none"> Cluster planting interdunes <i>Pimelea serpyllifolia</i> ssp. <i>serpyllifolia</i> (Thyme Riceflower) into swales and secondary dunes Plant small shrubs/ annuals – <i>Lotus australis</i> (Austral Trefoil), <i>Helichrysum leucopsideum</i> (Satin Everlasting) into swales or shade with leaf litter Replace controlled Couch with some <i>Distichlis distichophylla</i> (Emu Grass)
4	<ul style="list-style-type: none"> <i>Olearia axillaris</i> (Coast Daisy-bush), <i>Acacia longifolia</i> ssp. <i>sophorae</i> (Coastal Wattle), <i>Myoporum insulare</i> and <i>Spinifex hirsutus</i> (Rolling Spinifex), <i>Scaevola crassifolia</i> (Cushion Fanflower) 	<ul style="list-style-type: none"> Drain with <i>*Cenchrus clandestinus</i> (Kikuyu) a source of weed infestations <i>*Gazania</i> sp. (Gazania) 	<ul style="list-style-type: none"> Hand plant and direct seed by hand broad casting into small exclosures - <i>Lotus australis</i> (Austral trefoil), <i>Daucus glochidiatus</i> (Native Carrot), <i>Pelargonium australe</i> (Austral Stork's-bill), <i>Geranium retrorsum</i> (Grassland Geranium), <i>Picris squarrosa</i> (Squat Picris) Plant drain depression post weed control with <i>Machaerina juncea</i> (Bare Twig-rush), <i>Lepidosperma gladiatum</i> (Coast sword-sedge) Trial planting in 2-3 years the drain native to weed ratio is 80:20 these species <i>Samolus repens</i> (Creeping Brookweed), <i>Atriplex australasica</i> (native Orache)
5	<ul style="list-style-type: none"> <i>Acacia nematophylla</i> (Coast Wallowa) + <i>Acacia longifolia</i> ssp. <i>sophorae</i> (Coastal Wattle) + <i>Myoporum insulare</i> + <i>Olearia axillaris</i> (Coast Daisy-bush) 	<ul style="list-style-type: none"> Weeds – Marram Grass, Large (Coast Tea-tree) located next to the toilets, with several seedlings nearby. Overuse and Questionable native - <i>Acacia nematophylla</i> (Coast Wallowa) over 	<ul style="list-style-type: none"> Plant deep swale with <i>Leucopogon parviflorus</i> (Coast Beard-heath) with some <i>Pimelea serpyllifolia</i> ssp. <i>serpyllifolia</i> (Thyme Riceflower), and other annuals like <i>Helichrysum leucopsideum</i> (Satin Everlasting), <i>Geranium retrorsum</i> (Grassland Geranium)

Coastal Vegetation Structure Rapid Assessment

Cell	Cell description, vegetation and comment	Risks/ Threats - weeds/ pests erosion	Planting opportunities/ composition & where
	<ul style="list-style-type: none"> Natural recruitment of <i>Pelargonium australe</i> (Austral Stork's-bill), <i>Olearia axillaris</i> (Coast Daisy-bush) 	<p>planted, potential to become weedy in this environment (O'Leary pers comm. 2025)</p>	<ul style="list-style-type: none"> Introduce some <i>Cassytha pubescens</i> (Downy Dodder-laurel) Plant <i>Lepidosperma gladiatum</i> (Coast sword-sedge) in swales Plant small clumps of <i>Allocasuarina</i> (Sheoak)/ <i>Callitris gracilis</i> (Southern Cypress Pine) with the vine <i>Clematis microphylla</i> (Old Man's Beard) near track to replace <i>*Gaudium laevigatum</i> (Coast Tea-tree)
6	<ul style="list-style-type: none"> This is part of the widest sections of dune. <i>Acacia longifolia ssp. sophorae</i> (Coastal Wattle) + <i>Olearia axillaris</i> (Coast Daisy-bush) over <i>Scaevola crassifolia</i> (Cushion Fanflower), <i>Ficinia nodosa</i> (Knobby Clubbrush), <i>Dianella brevicaulis</i> (Short-stem Flax-lily), <i>Carpobrotus rossii</i> (Native Pigface) Large possibly remnant <i>Nitraria billardiarei</i> (Nitrebush) patch near toilets, which could be remnant. 	<ul style="list-style-type: none"> Missing vines/ twiners, Tussock grass and other mixed ground layer species Dense <i>*Ammophila arenaria</i> (Marram Grass) 	<ul style="list-style-type: none"> Plant more clumps of <i>Poa poiformis</i> (Coast tussock Grass) Plant vines/ twiners <i>Tetragonia implexicoma</i> (Bower Spinach) near advanced shrubs Plant <i>Lepidosperma gladiatum</i> (Coast sword-sedge) in swales
7	<ul style="list-style-type: none"> <i>Acacia longifolia ssp. sophorae</i> (Coastal Wattle) + <i>Olearia axillaris</i> (Coast Daisy-bush) over <i>Scaevola crassifolia</i> (Cushion Fanflower), <i>Ficinia nodosa</i> (Knobby Clubbrush), <i>Dianella brevicaulis</i> (Short-stem Flax-lily), <i>Carpobrotus rossii</i> (Native Pigface) 	<ul style="list-style-type: none"> Low species diversity with limited ecological service/ function potential 	<ul style="list-style-type: none"> Plant <i>Lomandra leucocephala ssp. leucocephala</i> (Woolly Mat-rush) with annuals like <i>Geranium retrorsum</i> (Grassland Geranium) Plant twiners and scramblers <i>Tetragonia implexicoma</i> (Bower Spinach) near advanced shrubs. <i>Muehlenbeckia gunnii</i> (Coastal Climbing Lignum) and <i>Clematis microphylla</i> (Old Man's Beard) on the hind dunes near taller plants or if Sheoak are planted Plant rarer plants into protected, stabilised areas such as; <i>Picris squarrosa</i>, (Squat Picris), <i>Actites megalocarpa</i> (Dune Thistle).
8	<ul style="list-style-type: none"> Wider dune with stabilised sand <i>Acacia spp.</i> (Wattles) + <i>Olearia axillaris</i> (Coast Daisy-bush) + <i>Scaevola crassifolia</i> (Cushion Fanflower) shrubland. Good plantings of <i>Lepidosperma gladiatum</i> (Coast Sword-sedge) 	<ul style="list-style-type: none"> Only a moderate species richness, could be improved. SA Water structure dune access point is weed incursions risk point and has <i>*Gaudium laevigatum</i> (Coast Tea-tree) (Coast Tea-tree) Questionable native - <i>Acacia nematophylla</i> (Coast Wallowa) over planted, potential to become weedy in this environment (O'Leary pers comm. 2025) 	<ul style="list-style-type: none"> Plant <i>Lomandra leucocephala ssp. leucocephala</i> (Woolly Mat-rush) 0.5-1m apart with annuals like <i>Geranium retrorsum</i>, lower dune mounds into swales >30m from foredune Plant <i>Alyxia buxifolia</i> (Sea Box), <i>Leucopogon parviflorus</i> (Coast Beard-heath) into swales in <i>Acacia spp.</i> (Wattles) mulched litter and <i>Pimelea serpyllifolia ssp. serpyllifolia</i> (Thyme Riceflower) Plant with some smaller shrubs and annuals <i>Lotus australis</i> (Austral trefoil), <i>Daucus glochidiatus</i> (Native Carrot), <i>Pelargonium australe</i> (Austral Stork's-bill), <i>Geranium retrorsum</i> (Grassland Geranium), <i>Picris squarrosa</i> (Squat Picris), <i>Actites megalocarpa</i> (Dune Thistle) Install seed exclosures or guard seedling recruitment

Coastal Vegetation Structure Rapid Assessment

Cell	Cell description, vegetation and comment	Risks/ Threats - weeds/ pests erosion	Planting opportunities/ composition & where
			<ul style="list-style-type: none"> Introduce <i>Cassytha pubescens</i> (Downy Dodder-laurel) by direct seeding onto some of the large shrubs Plant small clumps of <i>Allocasuarina verticillata</i> (Drooping Sheoak)/ <i>Callitris</i> with <i>Clematis microphylla</i> (Old Man's Beard) near track to replace <i>*Gaudium laevigatum</i> (Coast Tea-tree) <i>Atriplex australasica</i> (Native Orache)
9	<ul style="list-style-type: none"> Wider dunes with relatively uniform plant composition <i>Olearia axillaris</i> (Coast Daisy-bush) + <i>Acacia spp.</i> (Wattles) <i>Myoporum insulare</i> (Common Boobialla) Shrubland good plantings of <i>Lepidosperma gladiatum</i> (Coast Sword-sedge) Has good patches of open ground suitable for Painted Dragons. 	<ul style="list-style-type: none"> Plantings for aesthetic, not ecological function Couch Grass and oxalis incursions Large <i>Tamarix aphylla</i> (Athel Pine) <i>Atriplex cinerea</i> (Coast Saltbush) planted along way from foredune crest <i>Gazania</i> sp. (<i>Gazania</i>) spread through this area 	<ul style="list-style-type: none"> Plant <i>Lomandra leucocephala</i> ssp. <i>leucocephala</i> (Woolly Mat-rush) 0.5-1m apart with annuals like <i>Geranium retrorsum</i>, lower dune mounds into swales >30m from foredune Plant advanced <i>Allocasuarina verticillata</i> (Drooping Sheoak) near Athol pines, to establish ready for removal plant replacement with <i>Clematis microphylla</i> (Old Man's Beard) Plant with some smaller shrubs and annuals <i>Lotus australis</i>, <i>Daucus glochidiatus</i> (Native Carrot), <i>Pelargonium</i>, <i>Geranium retrorsum</i> <i>Lotus australis</i>, <i>Picris squarrosa</i> (Squat Picris), <i>Actites megalocarpa</i> (Dune Thistle) and <i>Poa fax</i> (Scaly Poa) into exclosures in areas of Moss Install seed exclosures or guard seedling recruitment Introduce <i>Cassytha pubescens</i> (Downy Dodder-laurel) by direct seeding onto some of the large shrubs Plant several clumps of <i>Callitris gracilis</i> (Southern Cypress Pine)
10	<ul style="list-style-type: none"> Wider dune, primary dune crest and deep swale <i>Olearia axillaris</i> (Coast Daisy-bush) + <i>Acacia spp.</i> (Wattles) +/- <i>Myoporum insulare</i> (Common Boobialla). Over <i>Spinifex hirsutus</i> (Rolling Spinifex) + <i>Ficinia nodosa</i> (Knobby Clubbrush) Good plantings of <i>Lepidosperma gladiatum</i> (Coast sword-sedge) in swales Relatively uniform plant composition. 	<ul style="list-style-type: none"> Fragmentation of vegetation by trail. Risk of vegetation trampling and weed incursions 	<ul style="list-style-type: none"> Plant <i>Alyxia buxifolia</i> (Sea Box), <i>Leucopogon parviflorus</i> (Coast Beard-heath) into swales in <i>Acacia spp.</i> (Wattles) mulched litter and <i>Pimelea serpyllifolia</i> ssp. <i>serpyllifolia</i> (Thyme Riceflower) Plant <i>Disphyma crassifolium</i> ssp. <i>clavellatum</i> (Round-leaf Pigface) and Plant several clumps of <i>Callitris gracilis</i> (Southern Cypress Pine) in hind or secondary dunes Install seed exclosures or guard seedling recruitment.
11	<ul style="list-style-type: none"> Wide dune 40m, deeper primary dune crest and deep swale 	<ul style="list-style-type: none"> Fragmented by trail, minor weed incursions 	<ul style="list-style-type: none"> Plant <i>Alyxia buxifolia</i> (Sea Box) and <i>Leucopogon parviflorus</i> (Coast Beard-heath) into swales in <i>Acacia spp.</i> mulched litter and <i>Pimelea serpyllifolia</i> ssp. <i>serpyllifolia</i> (Thyme Riceflower)

Coastal Vegetation Structure Rapid Assessment

Cell	Cell description, vegetation and comment	Risks/ Threats - weeds/ pests erosion	Planting opportunities/ composition & where
	<ul style="list-style-type: none"> <i>Olearia axillaris</i> (Coast Daisy-bush) + <i>Acacia</i> spp. (Wattles) +/- <i>Myoporum insulare</i> (Common Boobialla). Over <i>Spinifex hirsutus</i> (Rolling Spinifex) + <i>Ficinia nodosa</i> (Knobby Clubrush) Good plantings of <i>Lepidosperma gladiatum</i> (Coast Sword-sedge) and relatively good diversity and density. 	<ul style="list-style-type: none"> Risk of vegetation trampling and weed incursions 	<ul style="list-style-type: none"> Plant several clumps of <i>Callitris gracilis</i> (Southern Cypress Pine) in hind or secondary dunes Plant <i>Disphyma crassifolium</i> ssp. <i>clavellatum</i> (Round-leaf Pigface), on slope Install seed exclosures or guard seedling recruitment
12	<ul style="list-style-type: none"> Wide Cell tapering near Torrens outlet, <i>Olearia axillaris</i> (Coast Daisy-bush) + <i>Acacia</i> spp. (Wattles) +/- <i>Myoporum insulare</i> (Common Boobialla). Over <i>Spinifex hirsutus</i> (Rolling Spinifex) foredune into swale Good perennial plantings and densities 	<ul style="list-style-type: none"> Fragmented by trail, minor weed incursions Risk of vegetation trampling and weed incursions Northern edge threat of erosion from winter storms 	<ul style="list-style-type: none"> Plant <i>Alyxia buxifolia</i> (Sea Box) towards houses, <i>Leucopogon parviflorus</i> (Coast Beard-heath) Swales in <i>Acacia</i> spp. (Wattles) mulched litter Plant <i>Disphyma crassifolium</i> ssp. <i>clavellatum</i> (Round-leaf Pigface), on slope

Coastal Vegetation Structure Rapid Assessment



Figure 1, Cell 1 narrow dune with high diversity.



Figure 2, Drain with **Cenchrus clandestinus* (Kikuyu).



Figure 3, Cell 10 wider dune with deep swale *Olearia axillaris* (Coast Daisy-bush), *Acacia* spp. (Wattles), *Spinifex hirsutus* (Coast Spinifex) + *Carpobrotus rossii* (Native Pigface).



Figure 4, Large weedy *Leptospermum laevigatum* (Coastal Tea-tree) marked emerging through *Acacia cupularis* (Cup Wattle).

Coastal Vegetation Structure Rapid Assessment

2.1.5 Table- Summary of presence absence in cells, West Beach to Torrens Outlet.

Botanical Name	Common Name	Cell Present
<i>Acacia cupularis</i>	Cup Wattle	3, 4, 5, 6, 8, 9, 10, 11, 12
<i>Acacia ligulata</i>	Umbrella Wattle	3, 4
<i>Acacia longifolia ssp. sophorae</i>	Coastal Wattle	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
<i>Acacia nematophylla</i>	Coast Wallowa	1, 4, 5, 6, 7, 9, 10, 11
<i>Actites megalocarpus</i>	Dune Thistle	None
<i>Adriana quadripartita</i>	Coast Bitter-bush	None
<i>Allocasuarina verticillata</i>	Drooping Sheoak	None
<i>Alyxia buxifolia</i>	Sea Box	1
<i>Atriplex cinerea</i>	Coast Saltbush	1, 2, 5, 7, 8, 9, 11
<i>Austrostipa flavescens</i>	Coast Spear-grass	1, 5, 10
<i>Austrostipa scabra ssp. falcata</i>	Slender Spear-grass	None
<i>Calandrinia eremaea</i>	Dryland Purslane	None
<i>Callitris gracilis</i>	Southern Cypress Pine	None
<i>Carpobrotus rossii</i>	Pigface	All
<i>Cassytha pubescens</i>	Downy Dodder-laurel	10, 11
<i>Clematis microphylla</i>	Old Man's Beard	1, 10, 11
<i>Cotula australis</i>	Common Cotula	None
<i>Crassula closiana</i>	Stalked Crassula	None
<i>Crassula colligata ssp. lamprosperma</i>	Smooth-seed Stonecrop	7, 10
<i>Crassula colorata var. colorata</i>	Dense Crassula	10, 11
<i>Crassula decumbens var. decumbens</i>	Spreading Crassula	1, 10, 11
<i>Daucus glochidiatus</i>	Native Carrot	None
<i>Dianella brevicaulis</i>	Short-stem Flax-lily	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
<i>Disphyma crassifolium ssp. clavellatum</i>	Round-leaf Pigface	None
<i>Distichlis distichophylla</i>	Emu Grass	None
<i>Dodonaea viscosa ssp. spatulata</i>	Sticky Hop-bush	1, 4, 8, 9, 10, 11, 12
<i>Enchylaena tomentosa var. tomentosa</i>	Ruby Saltbush	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
<i>Ficinia nodosa</i>	Knobby Clubrush	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
<i>Geranium retrorsum</i>	Grassland Geranium	None
<i>Helichrysum leucopsidium</i>	Satin Everlasting	None (Note planted 2024/25)
<i>Kennedia prostrata</i>	Running Postman	None
<i>Kunzea pomifera</i>	Muntries	1, 3, 4, 5, 6, 8, 9, 10
<i>Lepidosperma gladiatum</i>	Coast Sword-sedge	1, 4, 8, 9, 10, 11
<i>Leucophyta brownii</i>	Coast Cushion Bush	8, 9, 11
<i>Leucopogon parviflorus</i>	Coast Beard-heath	1, 2, 9
<i>Lomandra leucocephala ssp. robusta</i>	Woolly Mat-rush	8,9
<i>Lotus australis</i>	Austral Trefoil	1, 12
<i>Machaerina juncea</i>	Bare Twig-rush	None
<i>Melaleuca lanceolata</i>	Dryland Tea-tree	2, 5, 6, 7, 10
<i>Muehlenbeckia gunnii</i>	Coastal Climbing Lignum	2, 3, 5, 6, 8, 9, 10, 11, 12
<i>Myoporum insulare</i>	Common Boobialla	1, 2, 5, 6, 7, 9, 10, 11, 12
<i>Myoporum parvifolium</i>	Creeping Boobialla	12
<i>Nitraria billardierei</i>	Nitre-bush	6

Coastal Vegetation Structure Rapid Assessment

<i>Olearia axillaris</i>	Coast Daisy-bush	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
<i>Parietaria debilis</i>	Smooth-nettle	None
<i>Pelargonium australe</i>	Austral Stork's-bill	1, 4, 8, 11
<i>Picris squarrosa</i>	Squat Picris	1,5
<i>Pimelea serpyllifolia</i> ssp. <i>serpyllifolia</i>	Thyme Riceflower	1
<i>Poa poiformis</i> var. <i>poiformis</i>	Coast Tussock-grass	1, 3, 4, 5, 8, 9, 10, 11
<i>Portulaca oleracea</i>	Common Purslane	None
<i>Rhagodia candolleana</i> ssp. <i>candolleana</i>	Sea-berry Saltbush	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
<i>Rytidosperma caespitosum</i>	Common Wallaby-grass	None
<i>Santalum acuminatum</i>	Quandong	None
<i>Salsola australis</i>	Buckbush	None
<i>Scaevola crassifolia</i>	Cushion Fanflower	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
<i>Senecio spanomerus</i>	Native Groundsel	1, 2, 5, 6, 8, 9, 11,12
<i>Spinifex hirsutus</i>	Rolling Spinifex	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
<i>Tetragonia implexicoma</i>	Bower Spinach	None
<i>Threlkeldia diffusa</i>	Coast Bonefruit	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
<i>Triglochin trichophora</i>	Small-spurred Arrowgrass	None

Note - Refer to Appendix 1 species recorded survey data.

4.1 Torrens Outlet to Grange Jetty

Cells Assessed: 12 Cells, 3.68 km in length.

Cells	1	2	3	4	5	6	7	8	9	10	11	12
Species diversity count	22	26	18	14	10	22	21	16	19	18	20	16

4.1.1 Key Features:

- Wider dunes, 30m to 80m - 1, 2, 3 & 7-12 relatively good vegetation composition, 1-3 with good species diversity.
- 3 narrower Cells <5m 4, 5, 6 with limited or no planting space.
- Potentially remnant *Santalum acuminatum* (Quandong) identified near the road in Cell 2 They were once more widespread and common on the Adelaide Plains, most likely when emus were more free roaming⁸.
- **Gazania* sp. (Gazania) management has occurred and on-going.
- Some cells toward the Grange Jetty have deeper swales and stable foredunes with *Spinifex hirsutus* (Rolling Spinifex).

4.1.2 Key risks:

- Narrow dune widths and erosion compromising capacity to support vegetation long-term.
- Cell 4–6 have limited potential for revegetation and ability to support ecological function.
- Weed incursions – **Gazania* sp. (Gazania) persisting under shrubs.
- Gazania on road verges not being treated.
- Impact of dune fencing disturbances may have increased **Thinopyrum junceiforme* (Sea Wheat-Grass).

4.1.3 Opportunities:

- Plant more mixed native grass patches and protect with guards / temporary fencing.
- Guard natural seedling recruitment.
- Planting more *Alyxia buxifolia* (Sea Box) and *Leucopogon parviflorus* (Coast Beard-heath) near Grange Café.
- Trial habitat planter pots in Henley square – with attractive annuals / smaller shrubs.
- Gazania education to households.
- Plant local natives on verges to replace planted cultivars.
- Plant small groves of *Santalum acuminatum* (Quandongs) with preferred host species in wider dunes with subsurface loam.
- Install some new interpretative signage.
- Continue incremental replacement of introduced **Thinopyrum junceiforme* (Sea Wheat-Grass) with *Spinifex hirsutus* (Rolling Spinifex) to benefit nesting Hooded Plovers at the Reddie street, Henley Beach end.⁹

⁸ Hemmings, P. (2024) *Pers Comm*. Regarding remnant Quandongs. Provenance Indigenous Plants.

⁹ Flaherty, T. (2025) *Pers comm*. Replacement of Sea Wheat Grass with *Spinifex hirsutus* (Spinifex) to benefit nesting Hooded Plovers.

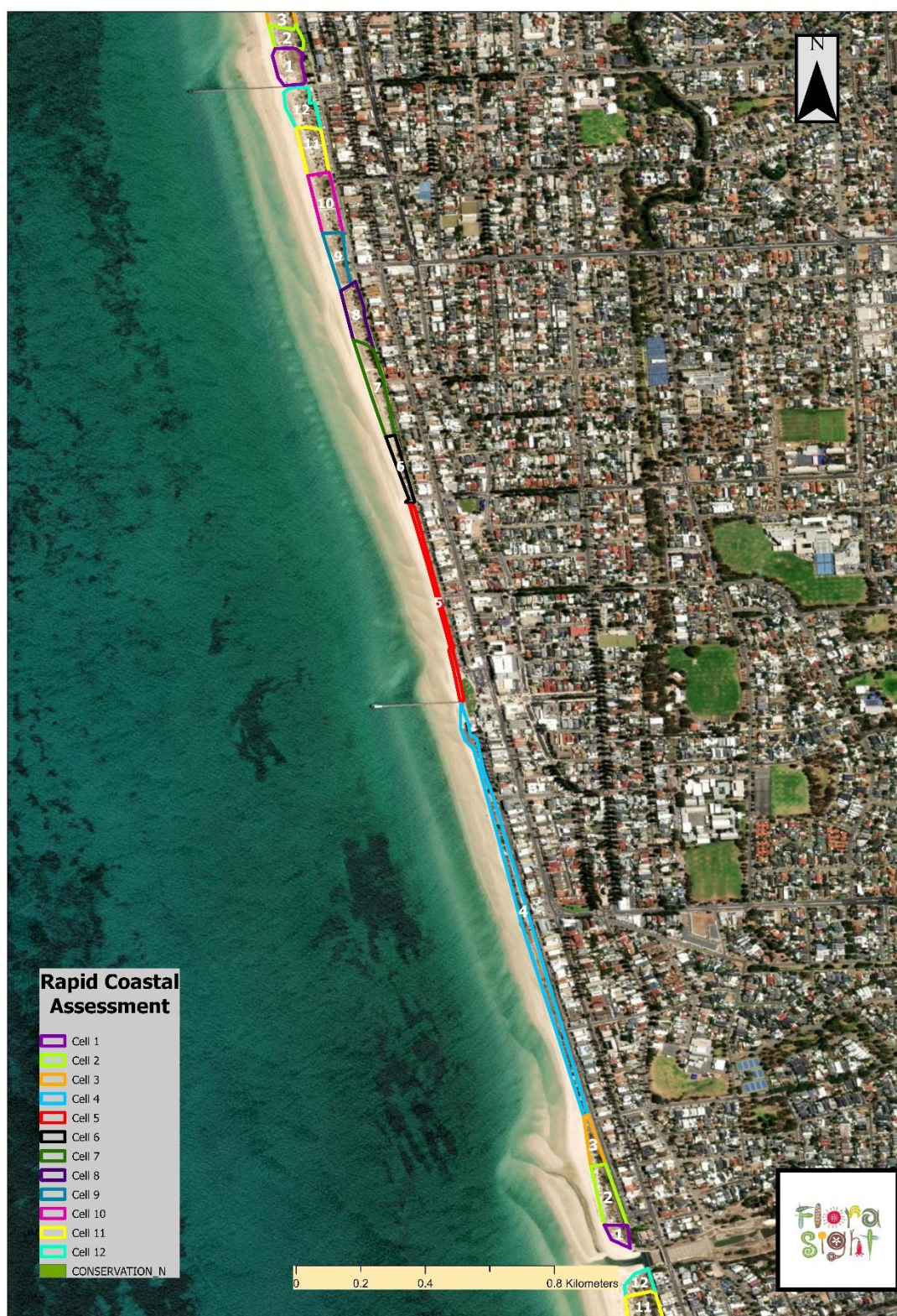


Figure 3. Torrens Outlet to Grange Jetty

4.1.4 Table- Vegetation description, threats and opportunities, Torrens Outlet North to Grange Jetty.

Cell	Cell description, vegetation and comment	Risks/ Threats - weeds/ pests erosion	Planting opportunities/ composition
1	<ul style="list-style-type: none"> <i>Scaevola crassifolia</i> (Cushion Fanflower), <i>Olearia axillaris</i> (Coast Daisy-bush) shrubland with +/- <i>Acacia longifolia</i> ssp. <i>sophorae</i> (Coastal Wattle) Open shrubland 1.8m 	<ul style="list-style-type: none"> <i>Scaevola crassifolia</i> (Cushion Fanflower) over planted Weeds - <i>*Thinopyrum junceiforme</i> (Sea Wheat-Grass), <i>*Aizoon pubescens</i> (Coastal Galenia), <i>Euphorbia terracina</i> (False Caper) 	<ul style="list-style-type: none"> Infill with different species composition - <i>Adriana quadripartita</i> (Coast Bitter-bush), <i>Pimelea serpyllifolia</i> ssp. <i>serpyllifolia</i> (Thyme Riceflower) Including companion planting <i>Tetragonia implexicoma</i> (Bower Spinach)
2	<ul style="list-style-type: none"> <i>Acacia longifolia</i> ssp. <i>sophorae</i> (Coastal Wattle), <i>Acacia cupularis</i> (Cup Wattle), <i>Myoporum insulare</i> Tall shrubland over <i>Olearia axillaris</i> (Coast Daisy-bush) and <i>Spinifex hirsutus</i> (Rolling Spinifex) on the dune crest. Remnant <i>Santalum acuminatum</i> (Quandong) 	<ul style="list-style-type: none"> <i>Dodonaea viscosa</i> ssp. <i>spatulata</i> (Sticky Hop-bush) planted on the edge of the foredune and are struggling to grow with burnt foliage. Weeds – <i>Carpobrotus edulis</i> (Hottentot Fig (white flowering)) and <i>Gazania</i> sp. (<i>Gazania</i>) 	<ul style="list-style-type: none"> Plant <i>Disphyma crassifolium</i> ssp. <i>clavellatum</i> (Round-leaf Pigface), on slope from road Plant more <i>Distichlis distichophylla</i> (Emu Grass), <i>Lepidosperma gladiatum</i> (Coast sword-sedge) in swale
3	<ul style="list-style-type: none"> <i>Acacia longifolia</i> ssp. <i>sophorae</i> (Coastal Wattle), <i>Acacia cupularis</i> (Cup Wattle) shrubland over <i>Olearia axillaris</i> (Coast Daisy-bush) + <i>Spinifex hirsutus</i> (Rolling Spinifex) 	<ul style="list-style-type: none"> <i>Gazania</i> with lots of recruitment, <i>Euphorbia terracina</i> (False Caper) sparsely present 	<ul style="list-style-type: none"> Plant <i>Disphyma crassifolium</i> ssp. <i>clavellatum</i> (Round-leaf Pigface), on slope from road Plant more <i>Distichlis distichophylla</i> (Emu Grass) in swale
4	<ul style="list-style-type: none"> <i>Acacia longifolia</i> ssp. <i>sophorae</i> (Coastal Wattle), <i>Acacia cupularis</i> (Cup Wattle), <i>Myoporum insulare</i> and middle storey plant <i>Scaevola crassifolia</i> Cell is dominated by larger common shrubs <i>*Gazania</i> sp. (<i>Gazania</i>) management has been undertaken 	<ul style="list-style-type: none"> Erosion risk. Narrow, disconnected and no dune left for a large part of this area. <i>Rhamnus alaternus</i> (Italian Buckthorn), <i>Gazania</i> sp. (<i>Gazania</i>) with lots of recruitment 	<ul style="list-style-type: none"> Continue with hardy species <i>Rhagodia candolleana</i> ssp. <i>candolleana</i> (Sea-berry Saltbush) Introduce <i>Tetragonia implexicoma</i> (Bower Spinach)
5	<ul style="list-style-type: none"> <i>Olearia axillaris</i> (Coast Daisy-bush), <i>Acacia cupularis</i> (Coast Wattle), <i>Acacia longifolia</i> ssp. <i>sophorae</i> (Coastal Wattle) shrubland small plantings <i>Pelargonium australe</i> (Austral Stork's-bill), <i>Dianella brevicaulis</i> (Short-stem Flax-lily), <i>Ficinia nodosa</i> (Knobby Clubrush) and <i>Leucophyta brownii</i> (Coast Cushion Bush) 	<ul style="list-style-type: none"> Narrow, disconnected and no dune left for a large part of this area <i>*Cenchrus clandestinus</i> (Kikuyu) incursions, <i>Senecio pterophrous</i> (African Daisy) 	<ul style="list-style-type: none"> Cluster plant multiple companion species with specialised exclosures with interpretation

Coastal Vegetation Structure Rapid Assessment

Cell	Cell description, vegetation and comment	Risks/ Threats - weeds/ pests erosion	Planting opportunities/ composition
6	<ul style="list-style-type: none"> Narrow Cell 10-15m wide, with new sand forming foredune <i>Spinifex hirsutus</i> (Rolling Spinifex) + <i>*Thinopyrum junceiforme</i> (Sea Wheat-Grass), <i>Ficinia nodosa</i> (Knobby Clubrush) 	<ul style="list-style-type: none"> Over planted <i>Acacia longifolia</i> ssp. <i>sophorae</i> (Coastal Wattle) and <i>Myoporum insulare</i> (Common Boobialla) <i>Olearia axillaris</i> (Coast Daisy-bush) planted in front half of foredune Weeds – <i>*Euphorbia paralias</i> (Sea Spurge), <i>*Gazania</i> sp. (Gazania), <i>*Dimorphotheca pluvialis</i> (Cape Marigold), <i>*Thinopyrum junceiforme</i> (Sea Wheat-Grass) 	<ul style="list-style-type: none"> Plant more <i>Poa poiformis</i> (Coast Tussock Grass) in clumps with <i>Auistrostipa flavescens</i> (Coast Spear-grass) Plant more <i>Atriplex cinerea</i> (Coast Saltbush) in foredune crest where <i>Spinifex hirsutus</i> (Rolling Spinifex) Companion plant 2-3 annual species with perennial grasses/ sedges or smaller shrubs. Hand broadcast grasses annual seed
7	<ul style="list-style-type: none"> Dominated by <i>Spinifex hirsutus</i> (Rolling Spinifex) Hummock Grassland across foredune into swale, with <i>Carpobrotus rossii</i>, <i>Ficinia nodosa</i> (Knobby Clubrush), young <i>Olearia axillaris</i> (Coast Daisy-bush). Patches of established <i>Scaevola crassifolia</i> (Cushion Fanflower) Large shrub layer is very sparse 	<ul style="list-style-type: none"> Weeds - <i>*Thinopyrum junceiforme</i> (Sea Wheat-Grass), <i>*Gazania</i> sp. (Gazania), <i>*Trachyandra divaricata</i> (Dune Onion Grass), <i>*Cynodon dactylon</i> var. <i>dactylon</i> (Couch grass), Hybrid <i>*Carpobrotus edulis</i> (Pigface) Uniform plantings, lacking some structural components ground covers, vines/ twiners 	<ul style="list-style-type: none"> Plant <i>Kunzea pomifera</i> (Muntries), <i>Tetragonia implexicoma</i> (Bower Spinach), <i>Muehlenbeckia gunnii</i> (Coastal Climbing Lignum)
8	<ul style="list-style-type: none"> Wider dune system Foredune area - Fore dune and deflated crest is <i>Spinifex hirsutus</i> (Rolling Spinifex) Hummock grassland with <i>Carpobrotus rossii</i>, <i>*Thinopyrum junceiforme</i> (Sea Wheat-Grass), emergent <i>Olearia axillaris</i> (Coast Daisy-bush) and <i>Atriplex cinerea</i> (Coast Saltbush). Swale and hind dune dominated by <i>Myoporum insulare</i>, <i>Acacia</i> spp. Shrubland and have some good species diversity and clumping of <i>Ficinia nodosa</i>, <i>Poa poiformis</i> (Coast tussock Grass) <i>Melaleuca lanceolata</i> (Dryland Tea-tree) along the track <i>Acacia</i> spp. (Wattles) seedling recruitment 	<ul style="list-style-type: none"> Weeds - <i>*Thinopyrum junceiforme</i> (Sea Wheat-Grass) foredune into swale, <i>Gazania</i> sp. (Gazania), <i>Euphorbia paralias</i> (Sea Spurge) Over planting <i>Myoporum insulare</i> (Common Boobialla) 	<ul style="list-style-type: none"> Swales would be good to plant <i>Picris squarrosa</i>, (Squat Picris), <i>Actites megalocarpa</i> (Dune Thistle) due to good protection. Plant <i>Leucopogon parviflorus</i> (Coast Beard-heath), a few clumps of <i>Adriana quadripartita</i> (Coast Bitter-bush) and <i>Pimelea serpyllifolia</i> ssp. <i>serpyllifolia</i> (Thyme Riceflower) Plant more clumps of <i>Poa poiformis</i> (Coast tussock Grass)

Coastal Vegetation Structure Rapid Assessment

Cell	Cell description, vegetation and comment	Risks/ Threats - weeds/ pests erosion	Planting opportunities/ composition
9	<ul style="list-style-type: none"> Wider dune 30 (first section) to 45m (second section), narrow swale Foredune and deflated crest, is dominated by <i>Spinifex hirsutus</i>, <i>Carpobrotus rossii</i> (Native Pigface), <i>*Thinopyrum junceiforme</i> (Sea Wheat-Grass), <i>Ficinia nodosa</i> (Knobby Clubrush) 	<ul style="list-style-type: none"> Weeds - <i>*Thinopyrum junceiforme</i> (Sea Wheat-Grass), <i>Euphorbia terracina</i> (False Caper) Uniform plantings, with limited structural diversity Drain has lots of weed grass cover and is a constant source of weed incursions 	<ul style="list-style-type: none"> Plant drain depression post weed control with <i>Machaerina juncea</i> (Bare Twig-rush), <i>Lepidosperma gladiatum</i> (Coast sword-sedge), <i>Samolus repens</i> (Creeping Brookweed) Direct attach <i>Cassytha pubescens</i> (Downy Dodder-laurel) to Wattles or other large shrubs
10	<ul style="list-style-type: none"> Wide dune >50m with deflated foredune with <i>Spinifex hirsutus</i> (Rolling Spinifex), <i>Carpobrotus rossii</i> (Native Pigface), <i>*Thinopyrum junceiforme</i> (Sea Wheat-Grass) Stable plantings the on edge of foredune <i>Olearia axillaris</i> (Coast Daisy-bush) and <i>Myoporum insulare</i> (Common Boobialla) medium to tall shrubland into the swale with large clumps of <i>Kunzea pomifera</i> (Muntries), <i>Poa poiformis</i> (Coast Tussock Grass), <i>Dianella brevicaulis</i> (Short-stem Flax-lily) 	<ul style="list-style-type: none"> <i>*Gazania</i> sp. (Gazania), and patches of <i>*Ehrharta villosa</i> var. <i>maxima</i> (Pyp Grass) an issue Deep, large drain a constant weed incursion issue with <i>*Cenchrus clandestinus</i> (Kikuyu) and other weed species 	<ul style="list-style-type: none"> Plant <i>Lomandra leucocephala</i> ssp. <i>leucocephala</i> (Woolly Mat-rush) 0.5-1m apart Plant with some smaller shrubs and annuals <i>Daucus glochidiatus</i> (Native Carrot), <i>Pelargonium australe</i> (Austral Stork's-bill), <i>Lotus australis</i> (Austral trefoil), <i>Geranium retrorsum</i> (Grassland Geranium) and <i>Helichrysum leucopsideum</i> (Satin Everlasting) <i>Picris squarrosa</i> (Squat Picris), <i>Actites megalocarpa</i> (Dune Thistle) and <i>Poa fax</i> (Scaly Poa) into exclosures in areas of Moss Once <i>Ehrharta villosa</i> var. <i>maxima</i> (Pyp Grass) densely plant with smaller shrubs and grasses Weed drain and plant replacement species <i>Machaerina juncea</i> (Bare Twig-rush), <i>Samolus repens</i> (Creeping Brookweed), <i>Distichlis distichophylla</i> (Emu Grass), <i>Lepidosperma gladiatum</i>, (Coast sword-sedge) Direct attach <i>Cassytha pubescens</i> (Downy Dodder-laurel) to Wattles
11	<ul style="list-style-type: none"> Wide dune with deepening and separating swales, <i>Olearia axillaris</i> (Coast Daisy-bush) + <i>Acacia longifolia</i> ssp. <i>sophorae</i> (Coastal Wattle), <i>Acacia cupularis</i> (Cup Wattle) medium to tall shrubland over Sedges <i>Ficinia nodosa</i> (Knobby Clubrush), <i>Dianella brevicaulis</i> (Short-stem Flax-lily) and <i>Spinifex hirsutus</i> (Rolling Spinifex) throughout Large <i>Myoporum insulare</i> (Common boobialla) planted near the track 	<ul style="list-style-type: none"> Weeds – <i>*Gazania</i> sp. (Gazania) and patches of <i>*Ehrharta villosa</i> var. <i>maxima</i> (Pyp Grass) an issue Limited age classes of medium to larger shrubs 	<ul style="list-style-type: none"> Plant <i>Lomandra leucocephala</i> ssp. <i>leucocephala</i> (Woolly Mat-rush) 0.5-1m apart Plant with some smaller shrubs and annuals <i>Lotus australis</i>, <i>Daucus glochidiatus</i> (Native Carrot), <i>Pelargonium australe</i> (Austral Stork's-bill), <i>Lotus australis</i> (Austral trefoil), <i>Geranium retrorsum</i> (Grassland Geranium) and <i>Helichrysum leucopsideum</i> (Satin Everlasting) <i>Picris squarrosa</i> (Hawkweed Picris), <i>Actites megalocarpa</i> (Dune Thistle) and <i>Poa fax</i> (Scaly Poa) into exclosures in areas of Moss

Coastal Vegetation Structure Rapid Assessment

Cell	Cell description, vegetation and comment	Risks/ Threats - weeds/ pests erosion	Planting opportunities/ composition
	<ul style="list-style-type: none"> <i>Lotus australis</i> (Austral Trefoil) and <i>Pelargonium australe</i> (Austral Stork's-bill) are doing well where they are planted in the swale and have seedling recruitment Some good amounts of branch debris left from weed management and older shrubs offering increased organic matter, habitat potential. 		<ul style="list-style-type: none"> Plant a few small clusters on <i>Callitris gracilis</i> (Southern Cypress Pine) near road on the edge of the swale Plant clumps of Quandongs, direct seed near <i>Acacia</i> sp. (Wattles) and <i>Myoporum insulare</i> (Common Boobialla) Direct attach <i>Cassytha pubescens</i> (Downy Dodder-laurel) to Wattles Deep swale could have more <i>Leucopogon parviflorus</i> (Coast Beard-heath) and some Plant <i>Tetragonia implexicoma</i> (Bower Spinach) into any fallen branches, or as a companion with <i>Leucopogon parviflorus</i> (Coast Beard-heath)
12	<ul style="list-style-type: none"> <i>Olearia axillaris</i> (Coast Daisy-bush) + <i>Spinifex hirsutus</i> (Rolling Spinifex) foredune, with <i>Myoporum insulare</i> (Common Boobialla) and <i>Acacia longifolia</i> ssp. <i>sophorae</i> (Coastal Wattle) large shrubland in swale and hind dune. Wide dune >50m, with very low flora diversity. Some good possibly remnant patches of old <i>Nitraria billardierei</i> (Nitrate-bush), with <i>Muehlenbeckia gunnii</i> (Coastal Climbing Lignum) growing larger shrubs through are good examples of how to companion plant 	<ul style="list-style-type: none"> <i>Banksia integrifolia</i> (Coastal Banksia) an east coast species planted next the jetty. Introduced/ hybrid *<i>Carpobrotus edulis</i> (Hottentot Fig) planted <i>Gazania</i> sp. (Gazania) 	<ul style="list-style-type: none"> Mass plant grasses, sedges <i>Lomandra leucocephala</i> ssp. <i>leucocephala</i> (Woolly Mat-rush) <i>Lepidosperma gladiatum</i> (Coast Sword-sedge) and mixed lower shrubs <i>Lotus australis</i> (Austral Trefoil) and <i>Kunzea pomifera</i> (Muntries) Plant a patch of <i>Adriana quadripartita</i> (Coast Bitter-bush) in several locations, and <i>Alyxia buxifolia</i> (Sea Box), <i>Leucopogon parviflorus</i> (Coast Beard-heath) in front of café with companion plant and in swales in <i>Acacia</i> spp. (Wattles) mulched litter further south. Companion plant <i>Tetragonia implexicoma</i> (Bower Spinach) <i>Leucopogon parviflorus</i> (Coast Beard-heath) or other large shrubs and into any fallen branches Plant clumps of <i>Santalum acuminatum</i> (Quandong), direct seed near <i>Acacia</i> spp. (Wattles) and <i>Myoporum insulare</i> (Common Boobialla), <i>Adriana quadripartita</i> (Coast Bitter-bush), <i>Pimelea serpyllifolia</i> ssp. <i>serpyllifolia</i> (Thyme Riceflower)

Coastal Vegetation Structure Rapid Assessment



Figure 5. Cell 3, possibly remnant *Santalum acuminatum* (Quandong) fruiting.



Figure 6. Risk - Narrow Cell 5, has very limited opportunities for creating corridor connectivity.

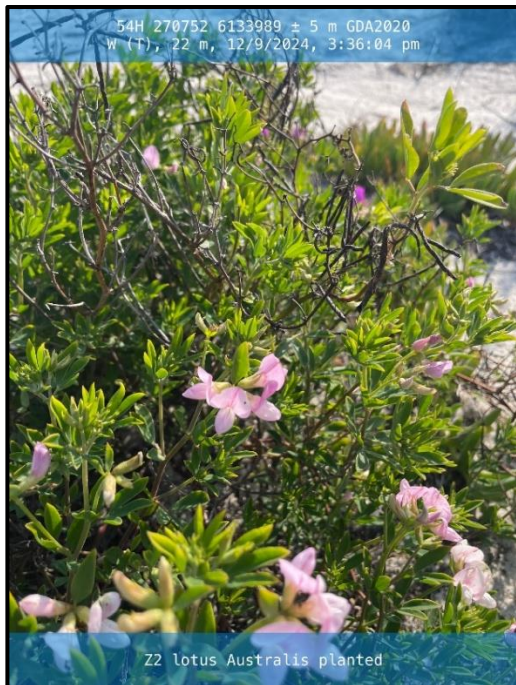


Figure 7. Cell 11, *Lotus australis* (Austral Trefoil).



Figure 8. Cell 12, with possibly large *Nitraria billardierei*, (Nitre-bush) with *Muehlenbeckia gunnii* (Coastal lignum) growing up through it. Foreground *Threlkeldia diffusa* (Coastal Bonefruit) in front and *Myoporum insulare* (Common Boobialla) in the background.



Figure 9. Cell 11, has a good density of common coastal shrubs *Olearia axillaris* (Coastal Daisy-bush), *Acacia cupularis* (Cup Wattle) (Cup Wattle) and *Acacia longifolia* ssp. *sophorae* (Coastal Wattle) Shrubland over *Spinifex hirsutus* (Coast Spinifex) and Mixed sedges. But, has low diversity considering the dune width.

4.1.5 Table- Summary of presence absence in cells, Torrens Outlet to Grange Jetty.

Botanical name	Common Name	Cell Presence
<i>Acacia cupularis</i>	Cup Wattle	3, 4, 5, 6, 8, 9, 10, 11
<i>Acacia ligulata</i>	Umbrella Wattle	3, 4
<i>Acacia longifolia ssp. sophorae</i>	Coastal Wattle	All (1–12)
<i>Acacia nematophylla</i>	Coast Wallowa	1, 4, 5, 6, 7, 9, 10, 11
<i>Actites megalocarpus</i>	Dune Thistle	None
<i>Adriana quadripartita</i>	Coast Bitter-bush	None
<i>Allocasuarina verticillata</i>	Drooping Sheoak	None
<i>Alyxia buxifolia</i>	Sea Box	1
<i>Atriplex cinerea</i>	Coast Saltbush	1, 2, 5, 7, 8, 9, 11
<i>Atriplex paludosa</i>	Marsh Saltbush	3
<i>Austrostipa flavescens</i>	Coast Spear-grass	2, 5, 10, 11
<i>Austrostipa scabra ssp. falcata</i>	Slender Spear-grass	None
<i>Calandrinia eremaea</i>	Dryland Purslane	None
<i>Callitris gracilis</i>	Southern Cypress Pine	None
<i>Carpobrotus rossii</i>	Pigface	All (1–12)
<i>Cassytha pubescens</i>	Downy Dodder-laurel	None
<i>Clematis microphylla</i>	Old Man's Beard	None
<i>Cotula australis</i>	Common Cotula	None
<i>Crassula closiana</i>	Stalked Crassula	None
<i>Crassula colligata ssp. lamprosperma</i>	Smooth-seed Stonecrop	7, 10
<i>Crassula colorata var. colorata</i>	Dense Crassula	10, 11
<i>Crassula decumbens var. decumbens</i>	Spreading Crassula	1, 10, 11
<i>Daucus glochidiatus</i>	Native Carrot	None
<i>Dianella brevicaulis</i>	Short-stem Flax-lily	All (1–12)
<i>Disphyma crassifolium ssp. clavellatum</i>	Round-leaf Pigface	None
<i>Distichlis distichophylla</i>	Emu Grass	None
<i>Dodonaea viscosa ssp. spatulata</i>	Sticky Hop-bush	1, 4, 8, 9, 10, 11
<i>Enchylaena tomentosa var. tomentosa</i>	Ruby Saltbush	All (1–12)
<i>Ficinia nodosa</i>	Knobby Clubrush	All (1–12)
<i>Geranium retrorsum</i>	Grassland Geranium	None
<i>Helichrysum leucopsidium</i>	Satin Everlasting	None
<i>Kennedia prostrata</i>	Running Postman	None
<i>Kunzea pomifera</i>	Muntries	1, 3, 4, 5, 6, 8, 9, 10
<i>Lepidosperma gladiatum</i>	Coast Sword-sedge	1, 4, 8, 9, 10, 11
<i>Leucophyta brownii</i>	Coast Cushion Bush	8, 9, 11
<i>Leucopogon parviflorus</i>	Coast Beard-heath	1, 2, 11
<i>Lomandra leucocephala ssp.</i>	Woolly Mat-rush	8
<i>Lotus australis</i>	Austral Trefoil	1, 12
<i>Machaerina juncea</i>	Bare Twig-rush	None
<i>Melaleuca lanceolata</i>	Dryland Tea-tree	2, 5, 6, 7, 10
<i>Muehlenbeckia gunnii</i>	Coastal Climbing Lignum	2, 3, 5, 6, 8, 9, 10, 11
<i>Myoporum insulare</i>	Common Boobialla	1, 2, 5, 6, 7, 9, 10, 11
<i>Myoporum parvifolium</i>	Creeping Boobialla	11
<i>Nitraria billardierei</i>	Nitre-bush	6
<i>Olearia axillaris</i>	Coast Daisy-bush	All (1–12)

Coastal Vegetation Structure Rapid Assessment

Botanical name	Common Name	Cell Presence
<i>Parietaria debilis</i>	Smooth-nettle	None
<i>Pelargonium australe</i>	Austral Stork's-bill	1, 4, 8, 12
<i>Picris squarrosa</i>	Squat Picris	5
<i>Pimelea serpyllifolia</i> ssp. <i>serpyllifolia</i>	Thyme Riceflower	1
<i>Poa poiformis</i> var. <i>poiformis</i>	Coast Tussock-grass	1, 3, 4, 5, 8, 9, 10, 11
<i>Portulaca oleracea</i>	Common Purslane	None
<i>Rhagodia candolleana</i> ssp. <i>candolleana</i>	Sea-berry Saltbush	All (1–12)
<i>Rytidosperma caespitosum</i>	Common Wallaby-grass	None
<i>Santalum acuminatum</i>	Quandong	None
<i>Salsola australis</i>	Buckbush	None
<i>Scaevola crassifolia</i>	Cushion Fanflower	All (1–12)
<i>Senecio spanomerus</i>	Native Groundsel	1, 2, 5, 6, 8, 9, 11
<i>Spinifex hirsutus</i>	Rolling Spinifex	All (1–12)
<i>Tetragonia implexicoma</i>	Bower Spinach	None
<i>Threlkeldia diffusa</i>	Coast Bonefruit	All (1–12)
<i>Triglochin trichophora</i>	Small-spurred Arrowgrass	None
<i>Epilobium</i> sp.	Willow Herb	1

Note - Refer to Appendix 1 species recorded survey data.

5.1 Grange to Tennyson Dunes

Cells Assessed: 12 Cells, 2.1km.

Cells	1	2	3	4	5	6	7	8
Species diversity count	15	20	14	18	20	13	14	15

5.1.1 Key Features:

- Deflated foredune and primary dune crests, reconstructed in quite a few of the cells.
- A large section from Cell 5-8 has no trail adjacent to dunes, less fragmentation risk.
- Relatively high diversity of invasive weed species.
- Pockets of good plantings with *Nitraria billardieri* (Nitre-bush) included.

5.1.2 Key Risks:

- Relatively low dunes susceptible to erosion.
- Large stretch of coast with lower species diversity.
- Weedy garden escapes a constant threat.
- Drains promoting constant weed incursions.
- Garden escapes – succulents and *Gazania* sp. (*Gazania*).
- Species planted not commonly occurring in dunes *Chrysocephalum apiculatum* (Common Everlasting).

5.1.3 Opportunities:

- To strengthen corridor connectivity and improve ecological function.
- Educate more locals about indigenous species.
- Work on planting higher diversity closer to the jetty using uncommon species and annuals.
- *Gazania* sp. (*Gazania*) and succulent free garden weed swap initiative.
- Council to use native species on verges and gardens near coast.
- Improve current weed infestations in drains, once successful management by replacing with native species such as; *Machaerina juncea* (Bare Twig-rush), *Samolus repens* (Creeping Brookweed), *Disphyma crassifolium* ssp. *clavellatum* (Round-leaf Pigface) and *Atriplex paludosa* ssp. *cordata* (Marsh Saltbush).
- Do not plant *Chrysocephalum apiculatum* (Common Everlasting) unless in wider consolidated dunes where some loam occurs. Dunes >50m wide at a minimum.

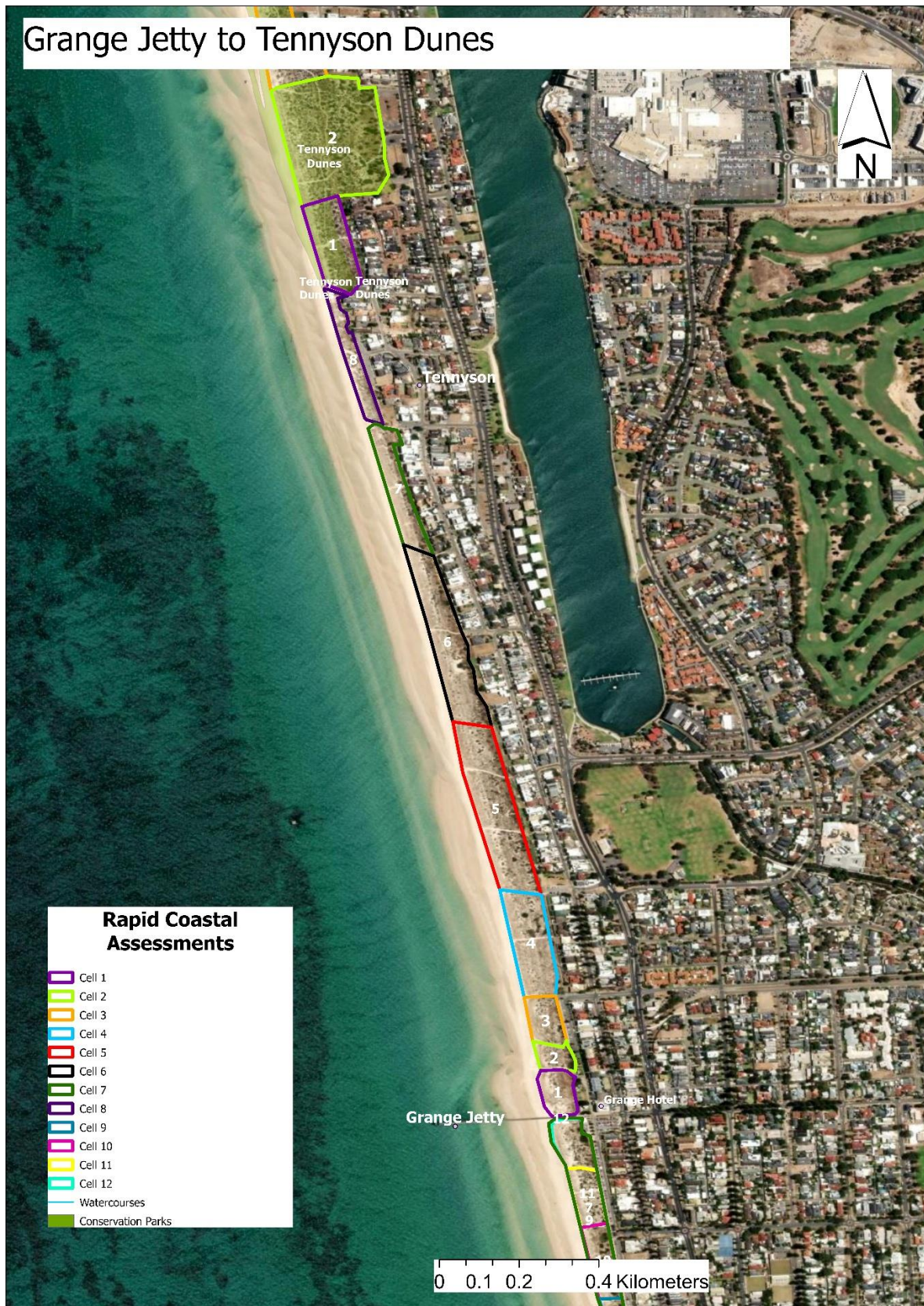


Figure 10. Grange to Tennyson Dunes.

5.1.4 Table- Vegetation description, threats and opportunities, Grange to Tennyson Dunes.

Cell	Cell description, vegetation and comment	Risks/ Threats - weeds/ pests erosion	Planting opportunities/ composition & where
1	<ul style="list-style-type: none"> <i>Olearia axillaris</i> (Coast Daisy-bush) open shrubland over <i>Spinifex hirsutus</i> (Rolling Spinifex) mainly on low Primary crest Control of <i>*Arctotis stoechadifolia</i> (White Arctotis) occurring 	<ul style="list-style-type: none"> Drain is a constant source of weeds – <i>Lolium</i> sp. (Rye Grass), <i>*Cenchrus clandestinus</i> (Kikuyu) and various weedy annuals Lots of rubbish entering the dune via the drain Follow-up <i>Arctotis stoechadifolia</i> (White Arctotis) 	<ul style="list-style-type: none"> Plant drain depression post weed control with <i>Machaerina juncea</i> (Bare Twig-rush), <i>Lepidosperma gladiatum</i> (Coast sword-sedge), <i>Samolus repens</i> (Creeping Brookweed) Plant <i>Atriplex australasica</i> (Native Orache)
2	<ul style="list-style-type: none"> Flattened dune, wide foredune and shallow swale <i>Olearia axillaris</i> (Coast Daisy-bush) + <i>Acacia longifolia</i> ssp. <i>sophorae</i> (Coastal Wattle), tall shrubland over <i>Scaevola crassifolia</i> (Cushion Fanflower) 	<ul style="list-style-type: none"> Weeds – <i>*Argyranthemum frutescens</i> ssp. <i>foeniculaceum</i> (Marguerite Daisy) and <i>*Gazania</i> sp. (Gazania) 	<ul style="list-style-type: none"> Mass plant grasses, sedges <i>Lomandra leucocephala</i> ssp. <i>leucocephala</i> (Woolly Mat-rush) <i>Lepidosperma gladiatum</i> (Coast Sword-sedge) and mixed lower shrubs <i>Lotus australis</i> (Austral Trefoil) swales to edge minor secondary dune, <i>Leucophyta brownii</i> (Coast Cushion Bush) primary crest to and <i>Kunzea pomifera</i> (Muntries) in swales, low mounds or gentle slopes
3	<ul style="list-style-type: none"> Flattened dune wide foredune and swale shallow <i>Olearia axillaris</i> (Coast Daisy-bush) + <i>Acacia longifolia</i> ssp. <i>sophorae</i> (Coastal Wattle), tall shrubland over <i>Scaevola crassifolia</i> (Cushion Fanflower) + <i>Ficinia nodosa</i> (Knobby Clubrush) planted 	<ul style="list-style-type: none"> Weeds – <i>Euphorbia terracina</i> (False Caper), <i>*Euphorbia paralias</i> (Sea Spurge) and <i>*Gazania</i> sp. (Gazania) Drain with more weed infestations 	<ul style="list-style-type: none"> Mass plant grasses, sedges <i>Lomandra leucocephala</i> ssp. <i>leucocephala</i> (Woolly Mat-rush) (<i>Lepidosperma gladiatum</i> (Coast Sword-sedge) and mixed lower shrubs <i>Lotus australis</i> (Austral Trefoil) and <i>Kunzea pomifera</i> (Muntries) Plant drain depression post weed control with <i>Machaerina juncea</i> (Bare Twig-rush), <i>Lepidosperma gladiatum</i> (Coast sword-sedge), <i>Samolus repens</i> (Creeping Brookweed), <i>Disphyma crassifolium</i> ssp. <i>clavellatum</i> (Round-leaf Pigface)
4	<ul style="list-style-type: none"> <i>Olearia axillaris</i> (Coast Daisy-bush) open shrubland with <i>Spinifex hirsutus</i> (Rolling Spinifex) Some evidence of limestone rubble Swales have some clumps of <i>Lepidosperma gladiatum</i> (Coast sword-sedge) 	<ul style="list-style-type: none"> Weeds - <i>*Gazania</i> sp. (Gazania), <i>*Cynodon dactylon</i> var. <i>dactylon</i> (Couch grass), <i>*Aizoon pubescens</i> (Coastal Galenia), <i>*Acacia cyclops</i> (Western Coastal Wattle) Fox warren (54H 270493 6135317) 	<ul style="list-style-type: none"> Infill with different species composition - <i>Adriana quadripartita</i> (Coast Bitter-bush), <i>Pimelea serpyllifolia</i> ssp. <i>serpyllifolia</i> (Thyme Riceflower) Plant <i>Alyxia buxifolia</i> (Sea Box) in limestone rubble areas

Coastal Vegetation Structure Rapid Assessment

Cell	Cell description, vegetation and comment	Risks/ Threats - weeds/ pests erosion	Planting opportunities/ composition & where
5	<ul style="list-style-type: none"> This Cell has minor undulation with a wide foredune and swale with lower back-dune <i>Olearia axillaris</i> (Coast Daisy-bush) + <i>Scaevola crassifolia</i> (Cushion Fanflower) Open shrubland Well established plantings of <i>Lomandra leucocephala</i> ssp. <i>leucocephala</i> (Woolly Mat-rush) and some large clumps of <i>Nitraria billardiarei</i> (Nitre-bush) <i>Picris squarrosa</i> (Squat Picris) has self-seeded in this Cell 	<ul style="list-style-type: none"> Garden escapees, succulents - Yuccas, Aeonium sp. *<i>Aizoon pubescens</i> (Coastal Galenia), on slope, with *<i>Cynodon dactylon</i> var. <i>dactylon</i> (Couch) patches and *<i>Ehrharta longiflora</i> (Annual Veldt Grass), <i>Arctotis stoechadifolia</i> (White Arctotis) and <i>Dimorphotheca pluvialis</i> (Cape Marigold) 	<ul style="list-style-type: none"> Plant small clumps of <i>Allocasuarina verticillata</i> (Drooping Sheoak)/ <i>Callitris gracilis</i> (Southern Cypress Pine) with <i>Clematis microphylla</i> (Old Man's Beard) near track Plant 5-10 <i>Adriana quadripartita</i> (Coast Bitter-bush), <i>Pimelea serpyllifolia</i> ssp. <i>serpyllifolia</i> (Thyme Riceflower) Continue planting more <i>Lomandra leucocephala</i> ssp. <i>leucocephala</i> (Woolly Mat-rush) 0.5m-1m apart, 10 plants Plant <i>Pimelea serpyllifolia</i> ssp. <i>serpyllifolia</i> (Thyme Riceflower) >20m from edge of the foredune Plant a small grove of <i>Santalum acuminatum</i> (Quandong) near track with host plants Direct attach <i>Cassytha pubescens</i> (Downy Dodder-laurel) to Wattles or other large shrubs
6	<ul style="list-style-type: none"> <i>Olearia axillaris</i> (Coast Daisy-bush) + <i>Scaevola crassifolia</i> Open shrubland Sparsely planted <i>Acacia longifolia</i> ssp. <i>sophorae</i> (Coastal Wattle) Good plantings of <i>Lepidosperma gladiatum</i> (Coast Sword-sedge) and <i>Distichlis distichophylla</i> (Emu Grass) <i>Picris squarrosa</i> (Squat Picris) has self-seeded 	<ul style="list-style-type: none"> Weeds - Large *<i>Leptospermum laevigatum</i> (Coastal Tea-tree) and young plants, *<i>Arctotis stoechadifolia</i> (White Arctotis), *<i>Tamarix aphylla</i> (Athel Pine) with herbaceous climbing weed *<i>Senecio angulatus</i> (Cape Ivy) 	<ul style="list-style-type: none"> Plant small clumps of <i>Allocasuarina verticillata</i> (Drooping Sheoak)/ <i>Callitris gracilis</i> (Southern Cypress Pine) with <i>Clematis microphylla</i> (Old Man's Beard) near track and <i>Tetragonia implexicoma</i> (Bower Spinach) closer to trails and houses Plant <i>Machaerina juncea</i> (Bare Twig-rush), <i>Disphyma crassifolium</i> ssp. <i>clavellatum</i> (Round-leaf Pigface) Also plant this species with <i>Kunzea pomifera</i> (Muntries) with <i>Poa poiformis</i> (Coast Tussock Grass) on slopes on Back-dune in deeper section of swale in mossy ground Plant <i>Pimelea serpyllifolia</i> ssp. <i>serpyllifolia</i> (Thyme Riceflower) >20m from edge of the foredune Direct attach <i>Cassytha pubescens</i> (Downy Dodder-laurel) to Wattles or other large shrubs
7	<ul style="list-style-type: none"> <i>Olearia axillaris</i> (Coast Daisy-bush) + <i>Scaevola crassifolia</i> (Cushion Fanflower) Open shrubland Sparsely planted <i>Acacia</i> spp. (Wattles) 	<ul style="list-style-type: none"> Lower deflated foredune with a shallow Weeds – possible hybrid *<i>Carpobrotus edulis</i> (Hottentot Fig (White flower)), 	<ul style="list-style-type: none"> Plant <i>Pimelea serpyllifolia</i> ssp. <i>serpyllifolia</i> (Thyme Riceflower), <i>Leucopogon parviflorus</i> (Coast Beard-heath) >20m from edge of the foredune

Coastal Vegetation Structure Rapid Assessment

Cell	Cell description, vegetation and comment	Risks/ Threats - weeds/ pests erosion	Planting opportunities/ composition & where
	<ul style="list-style-type: none"> Low wide foredune with no obvious primary crest, small swale and slope towards houses. Some dead <i>Atriplex cinerea</i> (Coast Saltbush) in foredune 	<ul style="list-style-type: none"> *<i>Lampranthus</i> sp. (Noon-flower) spreading *<i>Gazania</i> sp. (Gazania) No protective swale offers minimal relief from wind for revegetation Large infestation of *<i>Arctotis stoechadifolia</i> (White Arctotis) 	<ul style="list-style-type: none"> Planting clumps of <i>Lomandra leucocephala</i> ssp. <i>leucocephala</i> (Woolly Mat-rush), with other grasses and some annuals like <i>Helichrysum leucopsidium</i> (Satin Everlasting), <i>Geranium retrorsum</i> (Grassland Geranium) Direct attach <i>Cassytha pubescens</i> (Downy Dodder-laurel) to Wattles Replace dead <i>Atriplex cinerea</i> (Coast Saltbush) on Primary dune crests
8	<ul style="list-style-type: none"> Low wide foredune with no obvious primary crest, small swale and slope towards houses <i>Olearia axillaris</i> (Coast Daisy-bush) dominant shrubland over <i>Spinifex hirsutus</i> (Rolling Spinifex) <i>Tetragonia implexicoma</i> (Bower Spinach) has been planted in this section, but on its own not with a companion shrub 	<ul style="list-style-type: none"> Weeds – *<i>Gazania</i> sp. (Gazania), *<i>Dimorphotheca pluvialis</i> (Cape Marigold) 	<ul style="list-style-type: none"> Planting clumps <i>Lomandra leucocephala</i> ssp. <i>leucocephala</i> (Woolly Mat-rush) with other grasses and some annuals like <i>Helichrysum leucopsidium</i> (Satin Everlasting), <i>Geranium retrorsum</i> (Grassland Geranium) Direct attach <i>Cassytha pubescens</i> (Downy Dodder-laurel) to Wattles

Coastal Vegetation Structure Rapid Assessment



Figure 11, Cell 2 with *Olearia axillaris* (Coastal Daisy) Open shrubland with *Acacia longifolia* ssp. *sophorae* (Coastal Wattle).



Figure 12, Cell 6 – a mass concentration of weeds *Senecio angulatus* (Cape Ivy) and *Tamarix aphylla* (Athel Pine) in the background.



Figure 13, Large weedy native *Gaudium laevigatum* (Coastal Tea-tree) with indigenous *Melaleuca lanceolata* (Dryland Tea-tree) background.



Figure 14, Cell 6 - *Lepidosperma gladiatum* (Coast Sword-sedge) patch in swale.

5.1.5 Table- Summary of presence absence in cells, Grange to Tennyson Dunes.

Botanical name	Common Name	Cell present
<i>Acacia cupularis</i>	Cup Wattle	1-4, 6
<i>Acacia ligulata</i>	Umbrella Wattle	None
<i>Acacia longifolia</i> ssp. <i>sophorae</i>	Coastal Wattle	1-4, 6-8
<i>Acacia nematophylla</i>	Coast Wallowa	None
<i>Actites megalocarpus</i>	Dune Thistle	None
<i>Adriana quadripartita</i>	Coast Bitter-bush	None
<i>Allocasuarina verticillata</i>	Drooping Sheoak	None
<i>Alyxia buxifolia</i>	Sea Box	None
<i>Atriplex cinerea</i>	Coast Saltbush	2-7
<i>Atriplex paludosa</i>	Marsh Saltbush	3
<i>Austrostipa flavescens</i>	Coast Spear-grass	4
<i>Austrostipa scabra</i> ssp. <i>falcata</i>	Slender Spear-grass	None
<i>Calandrinia eremaea</i>	Dryland Purslane	None
<i>Callitris gracilis</i>	Southern Cypress Pine	None
<i>Carpobrotus rossii</i>	Pigface	All Cells
<i>Cassytha pubescens</i>	Downy Dodder-laurel	None
<i>Chrysocephalum apiculatum</i>	Common Everlasting	2
<i>Clematis microphylla</i>	Old Man's Beard	None
<i>Cotula australis</i>	Common Cotula	None
<i>Crassula closiana</i>	Stalked Crassula	None
<i>Crassula colligata</i> ssp. <i>lamprosperma</i>	Smooth-seed Stonecrop	2
<i>Crassula colorata</i> var. <i>colorata</i>	Dense Crassula	None
<i>Crassula decumbens</i> var. <i>decumbens</i>	Spreading Crassula	None
<i>Daucus glochidiatus</i>	Native Carrot	None
<i>Dianella brevicaulis</i>	Short-stem Flax-lily	All Cells
<i>Disphyma crassifolium</i> ssp. <i>clavellatum</i>	Round-leaf Pigface	1 & 2
<i>Distichlis distichophylla</i>	Emu Grass	None
<i>Dodonaea viscosa</i> ssp. <i>spatulata</i>	Sticky Hop-bush	None
<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>	Ruby Saltbush	None
<i>Ficinia nodosa</i>	Knobby Clubrush	All Cells
<i>Geranium retrorsum</i>	Grassland Geranium	None
<i>Helichrysum leucopsidium</i>	Satin Everlasting	None
<i>Kennedia prostrata</i>	Running Postman	None
<i>Kunzea pomifera</i>	Muntries	5 & 8
<i>Lepidosperma gladiatum</i>	Coast Sword-sedge	6
<i>Leucophyta brownii</i>	Coast Cushion Bush	1, 4, 6-8
<i>Leucopogon parviflorus</i>	Coast Beard-heath	None
<i>Lomandra leucocephala</i> ssp. <i>leucocephala</i>	Woolly Mat-rush	5, 8
<i>Lotus australis</i>	Austral Trefoil	2
<i>Machaerina juncea</i>	Bare Twig-rush	None

Coastal Vegetation Structure Rapid Assessment

Botanical name	Common Name	Cell present
<i>Melaleuca lanceolata</i>	Dryland Tea-tree	4
<i>Muehlenbeckia gunnii</i>	Coastal Climbing Lignum	2, 5-8
<i>Myoporum insulare</i>	Common Boobialla	1-6 & 8
<i>Myoporum parvifolium</i>	Creeping Boobialla	None
<i>Nitraria billardierei</i>	Nitre-bush	None
<i>Olearia axillaris</i>	Coast Daisy-bush	All Cells
<i>Parietaria debilis</i>	Smooth-nettle	None
<i>Pelargonium australe</i>	Austral Stork's-bill	1-2, 4, 8
<i>Picris squarrosa</i>	Squat Picris	None
<i>Pimelea serpyllifolia</i> ssp. <i>serpyllifolia</i>	Thyme Riceflower	None
<i>Poa poiformis</i> var. <i>poiformis</i>	Coast Tussock-grass	2, 4, 5, 8
<i>Portulaca oleracea</i>	Common Purslane	None
<i>Rhagodia candolleana</i> ssp. <i>candolleana</i>	Sea-berry Saltbush	All Cells
<i>Rytidosperma caespitosum</i>	Common Wallaby-grass	None
<i>Santalum acuminatum</i>	Quandong	None
<i>Salsola australis</i>	Buckbush	None
<i>Scaevola crassifolia</i>	Cushion Fanflower	1-4, 7&8
<i>Senecio spanomerus</i>	Native Groundsel	1-4
<i>Spinifex hirsutus</i>	Rolling Spinifex	All Cells
<i>Tetragonia implexicoma</i>	Bower Spinach	None
<i>Threlkeldia diffusa</i>	Coast Bonefruit	1-5& 7
<i>Triglochin trichophora</i>	Small-spurred Arrowgrass	None

Note - Refer to Appendix 1 species recorded survey data.

6.1 Tennyson to Bower Road, Semaphore Park

Cells Assessed: 12 Cells, 3.8km. Cells 1-6 within the Tennyson Coastal Reserve.

Table 3. Species Diversity count by cell

Cells	1	2	3	4	5	6	7	8	9	10	11	12
Species diversity count	35	52	24	31	16	21	18	18	19	18	21	22

6.1.1 Key features:

- This stretch of coastline contains one of the most important remnants along the coastline, contained within the well-known Tennyson Dunes Conservation Reserve, gazetted as a conservation reserve as of 13 September 2015. Tennyson Dunes was dedicated as a Conservation Reserve under the Minister's custodianship using provisions under Crown Land Management Act 2009.
- The dunes were historically consolidated, with white sands and loamy subsurface deposits.
- Excellent examples of species diversity and vegetation composition in remnant dunes and a good reference for how to structure companion planting.
- In Cells 1–3 provide insight roughly what Adelaide coastal vegetation would have looked like¹⁰.
- Tall wide remnant dune, forming a natural dune system consisting of - foredune, primary crest, back of primary crest, swales, secondary dune and back dune. The Rare *Anisynta cynone cynone* (Cynone Grass Skipper) has been noted from the grassy areas in Tennyson.
- Natural examples of companion plant composition can be found within Cell 1-7, especially the twiners *Muehlenbeckia gunnii* (Coastal Climbing Lignum), *Tetragonia implexicoma* (Bower Spinach) and *Clematis microphylla* (Old Man's Beard) which can be found on dead debris, suckering in open spaces, spreading through *Melaleuca lanceolata* (Dryland Tea-tree), *Leucopogon parviflorus* (Coast Beard-heath), *Acacia spp.* (Wattles) etc.

6.1.2 Key risks:

- Cell 9 is almost too narrow to provide connectivity between Cells.
- Rabbits persisting in dunes, impacting on planted annuals/ sensitive species.
- Reliance on the area for seed collection.
- Trampling vegetation and general damage.

6.1.3 Opportunities:

- Increase connectivity.
- Increase annuals and smaller shrubs in Cells 7-12.
- Spread the extent of cover of *Leucopogon parviflorus* (Coast Beard-heath), *Alyxia buxifolia* (Sea Box) into northern section of cells 3, 4 and into 11,12.
- Plant *Grevillea ilicifolia* ssp. *ilicifolia* (Holly-leaf Grevillea) as a trial in cell 2 and 4.
- Plant *Wahlenbergia littoricola* (Coast Bluebell) or *Wahlenbergia gracilentia* (Annual Bluebell) in any areas with clay near surface or older sand over silt.

¹⁰ Kraehenbuehl, D.K. (1996). Pre-European Vegetation of Adelaide: A Survey from the Gawler River to Hallett Cove. Nature Conservation Society of South Australia, Adelaide. 12. *The Coastal Dunes: Seaciff to Outer Harbor*, p. 203.

Coastal Vegetation Structure Rapid Assessment

- The known occurrence of the *Anisynta cynone cynone* (Cynone Grass Skipper) presents an opportunity to plant some more grasslands or add to existing patches by mass planting *Austrostipa scabra* ssp. *falcata*, which this species prefers.¹¹

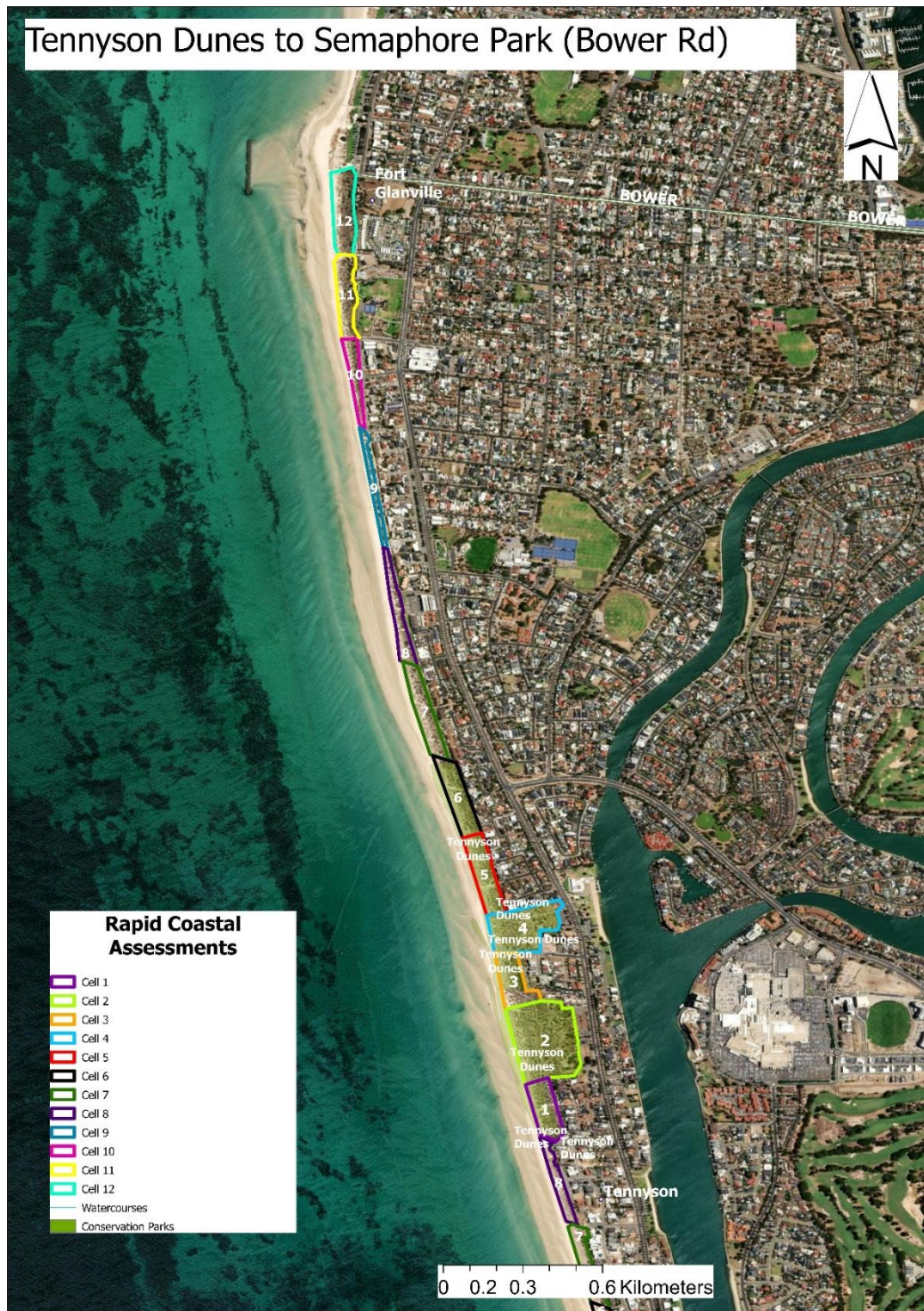


Figure 15. Tennyson to Bower Rd.

¹¹ Braby, M (2014) The Complete field guide to butterflies of Australia. CSIRO PUBLISHING. p54.

6.1.4 Table-Vegetation Description, threats and opportunities, Grange Jetty to Tennyson Dunes.

Cell	Cell description, vegetation and comment	Risks/ Threats – weeds/ pests’ erosion	Planting opportunities/ composition
1	<ul style="list-style-type: none"> Dominated by <i>Olearia axillaris</i> (Coast Daisy-bush), <i>Acacia longifolia</i> ssp. <i>sophorae</i> (Coastal Wattle) and <i>Leucopogon parviflorus</i> (Coast Beard-heath). Primary dune crest has <i>Picris squarrosa</i> (Squat Picris) Excellent planting location of <i>Leucopogon parviflorus</i> (Coast Beard-heath) and <i>Alyxia buxifolia</i> (Sea Box) 	<ul style="list-style-type: none"> Trampling of smaller vegetation Fences needing maintenance Weeds – <i>*Thinopyrum junceiforme</i> (Sea Wheat-Grass) in Primary dunes. <i>*Ehrharta calycina</i> (Perennial Veldt Grass) 	<ul style="list-style-type: none"> Cluster plant <i>Poa fax</i> (Scaly Poa) near large <i>Alyxia buxifolia</i> (Sea Box) remnant patches Plant <i>Kennedia prostrata</i> (Running Postman) in secondary swales in mossy areas on edge of other species and low sand mounds closer to houses Check for <i>Actites megalocarpus</i> (Dune Thistle) in spring surveys and with R. Sandercock before planning planting
2	<ul style="list-style-type: none"> Close to 200m wide, and the most intact remnant dune system with Foredune, with tall stable primary dune crest, back of primary crest, multiple swales and some smaller interdune mounds and Secondary tall dune into tall back dune up to 25m elevation. Dominated by <i>Olearia axillaris</i> (Coast Daisy-bush) + <i>Acacia longifolia</i> ssp. <i>sophorae</i> (Coastal Wattle) + <i>Leucopogon parviflorus</i> (Coast Beard-heath) with <i>Alyxia buxifolia</i> (Sea Box) <i>Melaleuca lanceolata</i> (Dryland Tea-tree) growing on the Secondary dune crest and <i>Callitris gracilis</i> (Southern Cypress Pine) on the eastern slope <i>Picris squarrosa</i> (Squat Picris) self-seeding in foredunes Excellent patch of stabilised soil with naturally occurring Wallaby grasses <i>Alyxia buxifolia</i> (Sea Box) seedling/ suckers are in open areas adjacent to large adults and more recent plantings of <i>Leucopogon parviflorus</i> (Coast Beard-heath) 	<ul style="list-style-type: none"> Trampling of smaller vegetation Fences needing maintenance Weeds – <i>*Thinopyrum junceiforme</i> (Sea Wheat-Grass) in Primary dunes. <i>*Ehrharta calycina</i> (Perennial Veldt Grass) Erosion primary foredune and blowouts on taller dunes from weed management Reinfestation of <i>Asparagus asparagoides</i> f. <i>asparagoides</i> (Bridal Creeper) currently has low cover Risks - accidental removal/ spraying possible of native species such as; <i>Picris squarrosa</i> (Squat Picris), <i>Salsola kali</i> (Buckbush) Pest Fauna – Active Rabbit warren & Foxes 	<ul style="list-style-type: none"> Cluster plant <i>Poa fax</i> (Scaly Poa) <i>Picris squarrosa</i> (Squat Picris), <i>Actites megalocarpus</i> (Dune Thistle) at the back of the primary dune crest, near secondary dunes and in deeper swales with wind protection near <i>Alyxia buxifolia</i> (Sea Box), <i>Leucopogon parviflorus</i> (Coast Beard-heath) Check for <i>Actites megalocarpus</i> (Dune Thistle) in spring surveys and with R. Sandercock before planning planting Introduce <i>Amyema melaleucae</i> (Melaleuca Mistletoe) to stands of <i>Melaleuca lanceolata</i> (Dryland Tea-tree) Plant <i>Grevillea ilicifolia</i> ssp. <i>ilicifolia</i> (Holly-leaf Grevillea) in hind dunes

Coastal Vegetation Structure Rapid Assessment

Cell	Cell description, vegetation and comment	Risks/ Threats – weeds/ pests' erosion	Planting opportunities/ composition
3	<ul style="list-style-type: none"> Narrower section 30m, with tall stable primary dune crest, back of primary crest, smaller swales and some smaller interdune mounds <i>Olearia axillaris</i> (Coast Daisy-bush), <i>Acacia longifolia</i> ssp. <i>longifolia</i> (Coastal Wattle) + <i>A. ligulata/ cupularis</i>, Densely planted <i>Kunzea pomifera</i> (Muntries) and <i>Carpobrotus rossii</i> (Native Pigface) 	<ul style="list-style-type: none"> Weeds - <i>*Thinopyrum junceiforme</i> (Sea Wheat-grass) in Primary dunes, <i>*Cynodon dactylon</i> var. <i>dactylon</i> (Couch Grass). <i>Ehrharta calycina</i> (Perennial Veldt Grass) <i>Asparagus asparagoides</i> f. <i>asparagoides</i> (Bridal Creeper) is still present, but with low cover 	<ul style="list-style-type: none"> Cluster plant <i>Poa fax</i> (Scaly Poa) near secondary dunes, deeper swales with wind protection near <i>Alyxia buxifolia</i> (Sea Box). <i>Picris squarrosa</i> (Squat Picris), <i>Pimelea serpyllifolia</i> ssp. <i>serpyllifolia</i> (Thyme Riceflower) Check for <i>Actites megalocarpus</i> (Dune Thistle) in spring surveys and with R. Sandercock before planning to have been planted Trial - Smaller microflora plantings of tubestock and hand broadcast seed <i>Picris squarrosa</i> (Squat Picris), <i>Actites megalocarpus</i> (Dune Thistle), <i>Triglochin trichophora</i> (Small-spurred Arrowgrass), <i>Daucus glochidiatus</i>, (Native Carrot), <i>Parietaria debilis</i> (Shade Pellitory) in micro cages (exclosures) in swales Plant clumps of <i>Adriana quadripartita</i> (Coast Bitter-bush) + <i>Pimelea serpyllifolia</i> ssp. <i>serpyllifolia</i> (Thyme Riceflower) in swales near house
4	<ul style="list-style-type: none"> Between 140-250m wide with tall stable primary dune crest, back of primary crest, multiple swales and some smaller interdune mounds and Secondary tall dune with a recovering back dune and swale Contains excellent established cluster plantings of <i>Lomandra leucocephala</i> ssp. <i>leucocephala</i> (Woolly Mat-rush) near <i>Allocasuarina verticillata</i> (Drooping Sheoak) behind the taller dunes Good moss cover in open areas 	<ul style="list-style-type: none"> Weeds - Sea Wheat-grass (<i>*Thinopyrum junceiforme</i>) in Primary dunes, <i>Euphorbia terracina</i> (False Caper) in swale Rabbits present and warrens have been marked) one is showing signs fresh activity <i>Ehrharta calycina</i> (Perennial Veldt Grass), <i>*Asparagus asparagoides</i> f. <i>asparagoides</i> (Bridal Creeper) low cover 	<ul style="list-style-type: none"> Cluster plant <i>Poa fax</i> (Scaly Poa) near secondary dunes, deeper swales with wind protection near <i>Alyxia buxifolia</i> (Sea Box). Trial - Smaller microflora plantings of tubestock and hand broadcast seed <i>Picris squarrosa</i> (Squat Picris), <i>Actites megalocarpus</i> (Dune Thistle), <i>Triglochin trichophora</i> (Small-spurred Arrowgrass), <i>Daucus glochidiatus</i>, (Native Carrot), <i>Parietaria debilis</i> (Shade Pellitory) in micro cages (exclosures) in swales <i>Amyema melaleucae</i> (Tea-tree Mistletoe) on <i>Melaleuca lanceolata</i> (Dryland Tea-tree) stands and <i>Lysiana exocarpi</i> (Harlequin Mistletoe) onto <i>Acacia</i> spp. (Wattles) or <i>Allocasuarina verticillata</i> (Drooping Sheoak) Plant <i>Grevillea ilicifolia</i> ssp. <i>ilicifolia</i> (Holly-leaf Grevillea) in hind dunes
5	<ul style="list-style-type: none"> <i>Olearia axillaris</i> (Coast Daisy-bush) shrubland with good remnant and <i>Lepidosperma gladiatum</i> (Coast Sword-sedge) clumps planted in the swale <i>Rhagodia candolleana</i> (Sea-berry Saltbush) and patches of <i>Kunzea pomifera</i> (Muntries). 	<ul style="list-style-type: none"> Weeds - <i>*Thinopyrum junceiforme</i> (Sea Wheat-grass) in primary dunes 	<ul style="list-style-type: none"> Plant <i>Alyxia buxifolia</i> (Sea Box) close to the trail on eastern side of established plants Plant <i>Pimelea serpyllifolia</i> ssp. <i>serpyllifolia</i> (Thyme Riceflower)

Coastal Vegetation Structure Rapid Assessment

Cell	Cell description, vegetation and comment	Risks/ Threats – weeds/ pests’ erosion	Planting opportunities/ composition
6	<ul style="list-style-type: none"> <i>Olearia axillaris</i> (Coast Daisy-bush) shrubland with good <i>Lepidosperma gladiatum</i> (Coast Sword-sedge) clumps in the swales with <i>Spinifex hirsutus</i> (Rolling Spinifex) <i>Poa poiformis</i> (Coast Tussock Grass), <i>Ficinia nodosa</i> (Knobby Clubrush) and <i>Kunzea pomifera</i> (Muntries) <i>Myoporum insulare</i>, <i>Acacia longifolia</i> ssp. <i>sophorae</i> (Coastal Wattle) occurring in a good natural mosaic 	<ul style="list-style-type: none"> Weeds – *<i>Euphorbia terracina</i> (False Caper), *<i>Euphorbia paralias</i> (Sea Spurge)/ and *<i>Mesembryanthemum crystallinum</i> (Iceplant) in patches throughout Garden escapes 	<ul style="list-style-type: none"> Plant <i>Picris squarrosa</i>, <i>Actites megalocarpus</i> (Dune Thistle), <i>Poa fax</i> (Scaly Poa) in the back of Primary dune crest and swale Plant <i>Lomandra leucocephala</i> ssp. <i>leucocephala</i> (Woolly Mat-rush) 0.5-1m apart Plant annuals like <i>Lotus australis</i> (Austral trefoil), <i>Geranium retrorsum</i> (Grassland Geranium) and <i>Helichrysum leucopsidium</i> (Satin Everlasting) Plant <i>Alyxia buxifolia</i> (Sea Box) close to the trail on eastern side of established plants Plant clumps of <i>Adriana quadripartita</i> (Coast Bitter-bush) + <i>Pimelea serpyllifolia</i> ssp. <i>serpyllifolia</i> (Thyme Riceflower) Direct attach <i>Cassytha pubescens</i> (Downy Dodder-laurel) to Wattles
7	<ul style="list-style-type: none"> <i>Olearia axillaris</i> (Coast Daisy-bush) shrubland transitioning into <i>Olearia axillaris</i> (Coast Daisy-bush) + <i>Acacia cupularis</i> (Cup Wattle) and <i>Dodonaea viscosa</i> ssp. <i>spatulata</i> (Sticky Hop-bush) taller Shrubland closer to houses. Patches of bare ground with dense interlocking shrubs providing suitable habitat for Painted Dragons 	<ul style="list-style-type: none"> Weeds – *<i>Gazania</i> sp. (Gazania) Potential garden escapees – various succulents Erosion from trail edges 	<ul style="list-style-type: none"> Plant <i>Picris squarrosa</i>, <i>Actites megalocarpus</i> (Dune Thistle), <i>Poa fax</i> (Scaly Poa) in the back of Primary dune crest and swale. Plant <i>Lomandra leucocephala</i> ssp. <i>leucocephala</i> (Woolly Mat-rush) 0.5-1m apart Plant annuals like <i>Lotus australis</i> (Austral trefoil), <i>Geranium retrorsum</i> (Grassland Geranium) and <i>Helichrysum leucopsidium</i> (Satin Everlasting)
8	<ul style="list-style-type: none"> Dominated by tall <i>Myoporum insulare</i> shrubland over <i>Olearia axillaris</i> (Coast Daisy-bush), planted <i>Rhagodia candolleana</i> ssp. <i>candolleana</i> (Sea-berry Saltbush) and patches of <i>Kunzea pomifera</i> (Muntries) <i>Alyxia buxifolia</i> (Sea Box) has been planted in this section 	<ul style="list-style-type: none"> Weeds – *<i>Gazania</i> sp. (Gazania) Garden escapes - Various succulents and potential threats from properties adjacent to dunes Erosion on edge of trails 	<ul style="list-style-type: none"> Plant <i>Lomandra leucocephala</i> ssp. <i>leucocephala</i> (Woolly Mat-rush) 0.5-1m apart Plant annuals like <i>Lotus australis</i> (Austral trefoil), <i>Geranium retrorsum</i> (Grassland Geranium) and <i>Helichrysum leucopsidium</i> (Satin Everlasting) Plant clumps of <i>Adriana quadripartita</i> (Coast Bitter-bush), <i>Pimelea serpyllifolia</i> ssp. <i>serpyllifolia</i> (Thyme Riceflower)
9	<ul style="list-style-type: none"> Very narrow Cell, consisting of reconstructed Primary dune only Dense <i>Olearia axillaris</i> (Coast Daisy-bush) shrubland, <i>Spinifex hirsutus</i> (Rolling Spinifex) 	<ul style="list-style-type: none"> Weeds – *<i>Acacia saligna</i> (Golden Wreath Wattle), *<i>Melaleuca armillaris</i> ssp. <i>armillaris</i> (Bracelet Honey-myrtle), *<i>Melaleuca nesophila</i> (Showy Honey Myrtle), <i>Dimorphotheca fruticosum</i> (Trailing African Daisy), <i>Tamarix aphylla</i> (Athel Pines) 	<ul style="list-style-type: none"> Removal of <i>Tamarix aphylla</i> (Athel Pines) and replace with Native Pines/ <i>Allocasuarina verticillata</i> (Drooping Sheoak) (Note, could be a trial, might be too exposed for these two species) Plant <i>Picris squarrosa</i> (Squat Picris), <i>Actites megalocarpus</i> (Dune Thistle), <i>Poa fax</i> (Scaly Poa) in the back of Primary dune crest and swale

Coastal Vegetation Structure Rapid Assessment

Cell	Cell description, vegetation and comment	Risks/ Threats – weeds/ pests’ erosion	Planting opportunities/ composition
			<ul style="list-style-type: none"> Plant clumps of <i>Adriana quadripartita</i> (Coast Bitter-bush) + <i>Pimelea serpyllifolia</i> ssp. <i>serpyllifolia</i> (Thyme Riceflower)
10	<ul style="list-style-type: none"> Narrow to widening dune system 20-40m Very densely planted <i>Olearia axillaris</i> (Coast Daisy-bush) + <i>Atriplex cinerea</i> (Coast Saltbush) + <i>Scaevola crassifolia</i> (Cushion Fanflower) shrubland with some large <i>Myoporum insulare</i> (Common Boobialla) and <i>Nitraria billardierei</i> (Nitre-bush) 	<ul style="list-style-type: none"> Weeds – <i>*Aizoon pubescens</i> (Coastal Galenia) Recent dune impact from instalment of new fence (However, long term it should protect vegetation further) 	<ul style="list-style-type: none"> Plant <i>Lomandra leucocephala</i> ssp. <i>leucocephala</i> (Woolly Mat-rush) 0.5-1m apart Plant annuals like <i>Lotus australis</i> (Austral trefoil), <i>Geranium retrorsum</i> (Grassland Geranium) and <i>Helichrysum leucopsidium</i> (Satin Everlasting) Direct attach <i>Cassytha pubescens</i> (Downy Dodder-laurel) to Wattles Plant <i>Leucophyta brownii</i> (Coast Cushion Bush) in hind part of taller foredunes
11	<ul style="list-style-type: none"> Wide dunes, 35-60m, with irregular sand mounds <i>Olearia axillaris</i> (Coast Daisy-bush) dense shrubland with some thick patches of thriving <i>Lepidosperma gladiatum</i> (Coast Sword-sedge) 	<ul style="list-style-type: none"> Weeds – <i>*Cynodon dactylon</i> var. <i>dactylon</i> (Couch grass), <i>*Euphorbia terracina</i> (False Caper) and <i>*Mesembryanthemum crystallinum</i> (Iceplant) in patches throughout 	<ul style="list-style-type: none"> Plant <i>Lomandra leucocephala</i> ssp. <i>leucocephala</i> (Woolly Mat-rush) 0.5-1m apart Plant annuals like <i>Lotus australis</i> (Austral trefoil), <i>Geranium retrorsum</i> (Grassland Geranium) and <i>Helichrysum leucopsidium</i> (Satin Everlasting) Plant <i>Alyxia buxifolia</i> (Sea Box) close to the trail on eastern side of established plants Plant clumps of <i>Adriana quadripartita</i> (Coast Bitter-bush) + <i>Pimelea serpyllifolia</i> ssp. <i>serpyllifolia</i> (Thyme Riceflower) Direct attach <i>Cassytha pubescens</i> (Downy Dodder-laurel) to Wattles Plant some small clumps of <i>Callitris gracilis</i> (Southern Cypress Pine) and <i>Santalum acuminatum</i> (Quandong) near track and into edge of deeper swales + <i>Rytidosperma caespitosum</i> (Common Wallaby-grass) underneath <i>Leucophyta brownii</i> (Coast Cushion Bush) foredune Trial plantings of tubestock and hand broadcast seed <i>Picris squarrosa</i> (Squat Picris), <i>Actites megalocarpus</i> (Dune Thistle), <i>Triglochin trichophora</i> (Small-spurred Arrowgrass), <i>Daucus glochidiatus</i>, (Native Carrot), <i>Parietaria debilis</i> (Shade Pellitory) in micro cages (exclosures) in swales

Coastal Vegetation Structure Rapid Assessment

Cell	Cell description, vegetation and comment	Risks/ Threats – weeds/ pests' erosion	Planting opportunities/ composition
12	<ul style="list-style-type: none"> Wide section >50m with taller stable Primary dune, with large swale with irregular sand mounds. <i>Olearia axillaris</i> (Coast Daisy-bush) dense shrubland with some thick and large clumps of <i>Myoporum insulare</i> (Common Boobialla) + <i>Acacia longifolia</i> ssp. <i>sophorae</i> (Coastal Wattle) <i>Pimelea serpyllifolia</i> ssp. <i>serpyllifolia</i> (Thyme Riceflower) occurs in this Cell, some might be remnant, very old plants growing toward middle and back of the Cell on consolidated sand mounds (Possibly traces of Limestone) 	<ul style="list-style-type: none"> Weeds – <i>Argyranthemum frutescens</i>, <i>Marguerite Daisy</i>, <i>*Thinopyrum junceiforme</i> (Sea Wheat-Grass) in primary dunes, <i>*Cynodon dactylon</i> var. <i>dactylon</i> (Couch Grass) Weed incursions from Fort Glanville 	<ul style="list-style-type: none"> Plant <i>Alyxia buxifolia</i> (Sea Box) close to the trail on eastern side of established plants and <i>Leucopogon parviflorus</i> (Coast Beard-heath) in swales and secondary dunes Plant some small clumps of <i>Callitris gracilis</i> (Southern Cypress Pine) and Quandongs near track and into edge of deeper swales and <i>Rytidosperma caespitosum</i> (Common Wallaby-grass) underneath Trial - Smaller microflora plantings of tubestock and hand broadcast seed <i>Picris squarrosa</i> (Squat Picris), <i>Actites megalocarpus</i> (Dune Thistle), <i>Triglochin trichophora</i> (Small-spurred Arrowgrass), <i>Daucus glochidiatus</i>, (Native Carrot), <i>Parietaria debilis</i> (Shade Pellitory) in micro cages (exclosures) in swales Direct attach <i>Cassytha pubescens</i> (Downy Dodder-laurel) to Wattles or other large shrubs

Coastal Vegetation Structure Rapid Assessment



Figure 16. Cell 1 - *Olearia axillaris* (Coastal Daisy), *Scaevola crassifolia* (Cushion Fanflower) with old *Alyxia buxifolia* (Sea Box) and *Leucopogon parviflorus* (Coast Beard-heath).



Figure 17. The rare reintroduced *Picris squarrosa* (Squat Picris) occurring in 4 Cells.



Figure 18. *Alyxia buxifolia* (Sea Box) Growing in secondary swale, below large Secondary/ Back dune.



Figure 19. Planted *Adriana quadripartita* (Coast Bitter-bush) recently planted in cell 2.



Figure 20. Dense patch of planted and remnant natives *Nitraria billardierei* (Nitre-bush), *Carpobrotus rossii* (Native Pigface), *Tetragonia implexicoma* (Bower Spinach).



Figure 21. *Leucopogon parviflorus* (Coast Beard-heath) in flower and the scrambling *Tetragonia implexicoma* (Bower Spinach) growing through it.

6.1.5 Table- Summary of presence absence in cells, Tennyson to Bower Road.

Botanical name	Common Name	Cell presence
<i>Acacia cupularis</i>	Cup Wattle	1,2,4, 9
<i>Acacia ligulata</i>	Umbrella Wattle	2, 3, 4
<i>Acacia longifolia ssp. sophorae</i>	Coastal Wattle	1-4, 8,9 & 11,12
<i>Acacia nematophylla</i>	Golden Wattle	8,9,10 & 12
<i>Acacia pycnantha</i>	Coast Wallowa	2, 4
<i>Actites megalocarpus</i>	Dune Thistle	None
<i>Adriana quadripartita</i>	Coast Bitter-bush	1, 2, 4
<i>Allocasuarina verticillata</i>	Drooping Sheoak	2, 4 & 12
<i>Alyxia buxifolia</i>	Sea Box	1 & 2
<i>Atriplex cinerea</i>	Coast Saltbush	1-12
<i>Atriplex paludosa</i>	Marsh Saltbush	3
<i>Austrostipa flavescens</i>	Coast Spear-grass	All Cells
<i>Austrostipa scabra ssp. falcata</i>	Slender Spear-grass	1, 3
<i>Billardiera cymosa</i>	Sweet Apple-berry	1 & 2
<i>Calandrinia eremaea</i>	Dryland Purslane	2
<i>Callitris gracilis</i>	Southern Cypress Pine	2
<i>Carpobrotus rossii</i>	Pigface	All Cells
<i>Cassytha pubescens</i>	Downy Dodder-laurel	1 & 2
<i>Clematis microphylla</i>	Old Man's Beard	1 & 2
<i>Cotula australis</i>	Common Cotula	1
<i>Crassula closiana</i>	Stalked Crassula	2
<i>Crassula colligata ssp. lamprosperma</i>	Smooth-seed Stonecrop	2
<i>Crassula colorata var. colorata</i>	Dense Crassula	1-3
<i>Crassula decumbens var. decumbens</i>	Spreading Crassula	1&5
<i>Daucus glochidiatus</i>	Native Carrot	1-3
<i>Dianella brevicaulis</i>	Short-stem Flax-lily	All Cells
<i>Disphyma crassifolium ssp. clavellatum</i>	Round-leaf Pigface	2,3 & 11
<i>Distichlis distichophylla</i>	Emu Grass	2 & 4
<i>Dodonaea viscosa ssp. spatulata</i>	Sticky Hop-bush	2 & 7
<i>Enchylaena tomentosa var. tomentosa</i>	Ruby Saltbush	2-6 & 9
<i>Ficinia nodosa</i>	Knobby Clubrush	All Cells
<i>Geranium retrorsum</i>	Grassland Geranium	1
<i>Helichrysum leucopsidium (Satin Everlasting)</i>	Satin Everlasting	1, 2,4, 5, 6, 8 & 11
<i>Kennedia prostrata</i>	Running Postman	2
<i>Kunzea pomifera</i>	Muntries	1-5, 7, 9
<i>Lepidosperma gladiatum</i>	Coast Sword-sedge	1,2, 4, 6, 7, 8, 10, 12
<i>Leucophyta brownii</i>	Coast Cushion Bush	1, 4, 6-8
<i>Leucopogon parviflorus</i>	Coast Beard-heath	1, 2, 4 & 6
<i>Lomandra leucocephala ssp. leucocephala</i>	Woolly Mat-rush	2, 4, 6, 7

Coastal Vegetation Structure Rapid Assessment

Botanical name	Common Name	Cell presence
<i>Lotus australis</i>	Austral Trefoil	1, 2, 6, 9 10
<i>Machaerina juncea</i>	Bare Twig-rush	1
<i>Melaleuca lanceolata</i>	Dryland Tea-tree	2, 3, 4
<i>Muehlenbeckia gunnii</i>	Coastal Climbing Lignum	1, 2, 4, 6, 9-12
<i>Myoporum insulare</i>	Common Boobialla	1-2, 9-12
<i>Myoporum parvifolium</i>	Creeping Boobialla	None
<i>Nitraria billardierei</i>	Nitre-bush	2, 6, 11, 12
<i>Olearia axillaris</i>	Coast Daisy-bush	All Cells
<i>Parietaria debilis</i>	Smooth-nettle	None
<i>Pelargonium australe</i>	Austral Stork's-bill	1-2, 4, 7-12
<i>Picris squarrosa</i>	Squat Picris	1-2, 6, 11
<i>Pimelea serpyllifolia</i> ssp. <i>serpyllifolia</i>	Thyme Riceflower	2, 12
<i>Poa poiformis</i> var. <i>poiformis</i>	Coast Tussock-grass	1- 4, 6- 8, 10-12
<i>Portulaca oleracea</i>	Common Purslane	2
<i>Rhagodia candolleana</i> ssp. <i>candolleana</i>	Sea-berry Saltbush	1-6, 8-12
<i>Rytidosperma caespitosum</i>	Common Wallaby-grass	2, 4
<i>Santalum acuminatum</i>	Quandong	None
<i>Salsola australis</i>	Buckbush	None
<i>Scaevola crassifolia</i>	Cushion Fanflower	1-4, 7&8, 10-12
<i>Senecio spanomerus</i>	Native Groundsel	1-8 &10-12
<i>Spinifex hirsutus</i>	Rolling Spinifex	1-8 &10-12
<i>Tetragonia implexicoma</i>	Bower Spinach	1-4, 6-7
<i>Threlkeldia diffusa</i>	Coast Bonefruit	All Cells
<i>Triglochin trichophora</i>	Small-spurred Arrowgrass	None

7. Discussion

Observations suggest that flora species diversity along the Adelaide coastal dune system, from West Beach to Semaphore Park, is generally strong. Over the past 30 years, revegetation efforts have successfully complemented natural regeneration, creating a resilient vegetation structure. However, species diversity remains at approximately half its potential, except in the Tennyson Dunes, which support greater biodiversity. There are significant opportunities to further enhance plant diversity across the dune system, which would also improve habitat availability for invertebrates and fauna.

While some native species are difficult to cultivate and reintroduce in a highly modified environment, certain cells have reached a stage where they can support planting of such species. In some cells, initial efforts to introduce uncommon species have already seen success. This report provides practical recommendations for increasing flora diversity at the cell level, emphasizing niche plantings of underrepresented species while maintaining species composition between cells.

The planting suggestions outlined under the heading ‘**Planting Opportunities: Composition & Location**’—including species such as *Alyxia buxifolia* (Sea Box), *Leucopogon parviflorus* (Coast Beard Heath), and *Lomandra leucocephala* ssp. *robusta* (Woolly Mat-rush)—are generally recommended based on the following conditions: dune width greater than 30 meters, stabilized areas, suitable wind protection (provided by taller primary dunes or established vegetation), good organic matter accumulation (leaf litter and debris), and strong moss/cryptogamic cover.

Additionally, records should be reviewed for *Actites megalocarpus* (Dune Thistle), which was believed to have been reintroduced to Tennyson Dunes by the Tennyson Dune Care Group in the early 2000s. A potential specimen was observed during surveys, but due to the absence of seeds or flowers at the time, positive identification was not possible.

Furthermore, data analysis comparing species diversity across cells could be conducted by categorising dune types based on their width and structural integrity. For example:

- <10m wide, very narrow
- 10-30m wide deflated or flat
- 10-30m wide, low primary dune with a shallow swale
- 30-50m wide, taller primary dune, mixed depressions and swales, low secondary dune forming
- 60-80m taller primary dune, stabilised deep swale, taller primary dunes with smaller sand mounds and swales forming
- >80m complex dune system very tall dunes multiple swales – Tennyson Dunes.

Lastly, since these surveys, *Helichrysum leucopsideum* (Satin Everlasting) has been planted along with several other species in cells where it was not noted at the time of this survey.¹²

7.1 Conclusion

This assessment highlights the progress made in enhancing vegetation diversity and structure within the Adelaide coastal dune system. It also identifies opportunities for future improvement through targeted revegetation, community engagement, and infrastructure development. These efforts can contribute to restoring ecological integrity and supporting biodiversity across this important coastal habitat.

¹² Endacott, M. (2025) Pers comm *Helichrysum leucopsideum* (Satin Everlasting).

8. References

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Appendix 1: Site survey- species presence absence list per cell.

Table 4. West Beach to Torrens Outlet, species presence absence.

Botanical name	Common Name	Zone											
		1	2	3	4	5	6	7	8	9	10	11	12
<i>Acacia cupularis</i>	Cup Wattle			1	1	1	1		1	1	1	1	1
<i>Acacia ligulata</i>	Umbrella Wattle			1	1								
<i>Acacia longifolia ssp. sophorae</i>	Coastal Wattle	1	1	1	1	1	1	1	1	1	1	1	1
<i>Acacia nematophylla</i>	Coast Wallowa	1			1	1	1	1		1	1	1	1
<i>Actites megalocarpus</i>	Dune Thistle												
<i>Adriana quadripartita</i>	Coast Bitter-bush												
<i>Allocasuarina verticillata</i>	Drooping Sheoak												
<i>Alyxia buxifolia</i>	Sea Box	1											
<i>Atriplex cinerea</i>	Coast Saltbush	1	1			1		1	1	1		1	1
<i>Austrostipa flavescens</i>	Coast Spear-grass					1					1		1
<i>Austrostipa scabra ssp. falcata</i>	Slender Spear-grass												
<i>Calandrinia eremaea</i>	Dryland Purslane												
<i>Callitris gracilis</i>	Southern Cypress Pine												
<i>Carpobrotus rossii</i>	Pigface	1	1	1	1	1	1	1	1	1	1	1	1
<i>Cassytha pubescens</i>	Downy Dodder-laurel												
<i>Clematis microphylla</i>	Old Man's Beard												
<i>Cotula australis</i>	Common Cotula												
<i>Crassula closiana</i>	Stalked Crassula												
<i>Crassula colligata ssp. lamprosperma</i>	Smooth-seed Stonecrop							1			1		
<i>Crassula colorata var. colorata</i>	Dense Crassula										1	1	
<i>Crassula decumbens var. decumbens</i>	Spreading Crassula	1									1	1	
<i>Daucus glochidiatus</i>	Native Carrot												
<i>Dianella brevicaulis</i>	Short-stem Flax-lily	1	1	1	1	1	1	1	1	1	1	1	1
<i>Disphyma crassifolium ssp. clavellatum</i>	Round-leaf Pigface												
<i>Distichlis distichophylla</i>	Emu Grass												
<i>Dodonaea viscosa ssp. spatulata</i>	Sticky Hop-bush	1			1				1	1	1	1	1
<i>Enchylaena tomentosa var. tomentosa</i>	Ruby Saltbush	1	1	1	1	1	1	1	1	1	1	1	1
<i>Ficinia nodosa</i>	Knobby Clubrush	1	1	1	1	1	1	1	1	1	1	1	1
<i>Geranium retrorsum</i>	Grassland Geranium												
<i>Helichrysum leucopsidium</i>	Satin Everlasting												
<i>Kennedia prostrata</i>	Running Postman												
<i>Kunzea pomifera</i>	Muntries	1		1	1	1	1		1	1	1		
<i>Lepidosperma gladiatum</i>	Coast Sword-sedge	1			1				1	1	1	1	
<i>Leucophyta brownii</i>	Coast Cushion Bush								1	1		1	1
<i>Leucopogon parviflorus</i>	Coast Beard-heath	1	1									1	
<i>Lomandra leucocephala ssp. leucocephala</i>	Woolly Mat-rush								1				
<i>Lotus australis</i>	Austral Trefoil	1										1	
<i>Machaerina juncea</i>	Bare Twig-rush												
<i>Melaleuca lanceolata</i>	Dryland Tea-tree		1			1	1	1			1		
<i>Muehlenbeckia gunnii</i>	Coastal Climbing Lignum		1	1		1	1		1	1	1	1	1
<i>Myoporum insulare</i>	Common Boobialla	1	1			1	1	1		1	1	1	
<i>Myoporum parvifolium</i>	Creeping Boobialla											1	
<i>Nitraria billardiieri</i>	Nitre-bush						1						
<i>Olearia axillaris</i>	Coast Daisy-bush	1	1	1	1	1	1	1	1	1	1	1	1

Coastal Vegetation Structure Rapid Assessment

Botanical name	Common Name	Zone											
		1	2	3	4	5	6	7	8	9	10	11	12
<i>Parietaria debilis</i>	Smooth-nettle												
<i>Pelargonium australe</i>	Austral Stork's-bill	1			1				1			1	1
<i>Picris squarrosa</i>	Squat Picris	1				1				1			
<i>Pimelea serpyllifolia ssp. serpyllifolia</i>	Thyme Riceflower	1											
<i>Poa poiiformis var. poiiformis</i>	Coast Tussock-grass	1		1	1	1			1	1	1	1	
<i>Portulaca oleracea</i>	Common Purslane												
<i>Rhagodia candolleana ssp. candolleana</i>	Sea-berry Saltbush	1	1	1	1	1	1	1	1	1	1	1	1
<i>Rytidosperma caespitosum</i>	Common Wallaby-grass												
<i>Santalum acuminatum</i>	Quandong												
<i>Salsola australis</i>	Buckbush												
<i>Scaevola crassifolia</i>	Cushion Fanflower	1	1	1	1	1	1	1	1	1	1	1	1
<i>Senecio spanomerus</i>	Native Groundsel	1	1			1	1		1	1		1	1
<i>Spinifex hirsutus</i>	Rolling Spinifex	1	1	1	1	1	1	1	1	1	1	1	1
<i>Tetragonia implexicoma</i>	Bower Spinach												
<i>Threlkeldia diffusa</i>	Coast Bonefruit	1	1	1	1	1	1	1	1	1	1	1	1
<i>Triglochin trichophora</i>	Small-spurred Arrowgrass												
Species Diversity – Indigenous species only		25	16	15	18	22	18	15	21	22	23	26	19

Coastal Vegetation Structure Rapid Assessment

Table 5. Torrens Outlet to Grange Jetty, species presence absence.

Botanical name	Common Name	Zone											
		1	2	3	4	5	6	7	8	9	10	11	12
<i>Acacia cupularis</i>	Cup Wattle			1			1	1	1		1	1	
<i>Acacia ligulata</i>	Umbrella Wattle	1		1			1						
<i>Acacia longifolia ssp. sophorae</i>	Coastal Wattle	1	1	1	1			1	1	1	1	1	1
<i>Acacia nematophylla</i>	Coast Wallowa	1	1	1			1						
<i>Actites megalocarpus</i>	Dune Thistle												
<i>Adriana quadripartita</i>	Coast Bitter-bush												
<i>Allocasuarina verticillata</i>	Drooping Sheoak			1									
<i>Alyxia buxifolia</i>	Sea Box												
<i>Atriplex cinerea</i>	Coast Saltbush	1	1	1	1	1		1	1	1	1	1	1
<i>Atriplex paludosa ssp. cordata</i>	Marsh Saltbush		1	1			1	1					
<i>Austrostipa flavescens</i>	Coast Spear-grass		1	1			1	1					
<i>Austrostipa scabra ssp. falcata</i>	Slender Spear-grass												
<i>Calandrinia eremaea</i>	Dryland Purslane							1	1	1	1	1	1
<i>Callitris gracilis</i>	Southern Cypress Pine						1						
<i>Carpobrotus rossii</i>	Pigface	1	1	1	1	1		1	1	1	1	1	1
<i>Cassytha pubescens</i>	Downy Dodder-laurel												
<i>Clematis microphylla</i>	Old Man's Beard												
<i>Cotula australis</i>	Common Cotula												
<i>Crassula closiana</i>	Stalked Crassula						1						
<i>Crassula colligata ssp. lamprosperma</i>	Smooth-seed Stonecrop		1										
<i>Crassula colorata var. colorata</i>	Dense Crassula	1	1										
<i>Crassula decumbens var. decumbens</i>	Spreading Crassula		1					1	1	1	1	1	1
<i>Daucus glochidiatus</i>	Native Carrot						1						
<i>Dianella brevicaulis</i>	Short-stem Flax-lily	1	1	1	1	1	1	1	1	1	1	1	1
<i>Disphyma crassifolium ssp. clavellatum</i>	Round-leaf Pigface		1										
<i>Distichlis distichophylla</i>	Emu Grass												
<i>Dodonaea viscosa ssp. spatulata</i>	Sticky Hop-bush		1					1	1	1	1	1	1
<i>Enchylaena tomentosa var. tomentosa</i>	Ruby Saltbush	1					1						
<i>Ficinia nodosa</i>	Knobby Clubrush	1	1	1	1	1	1	1	1	1	1	1	1
<i>Geranium retrorsum</i>	Grassland Geranium												
<i>Helichrysum leucopsidium</i>	Satin Everlasting												1
<i>Kennedia prostrata</i>	Running Postman												
<i>Kunzea pomifera</i>	Muntries		1	1				1	1			1	
<i>Lepidosperma gladiatum</i>	Coast Sword-sedge	1	1				1						
<i>Leucophyta brownii</i>	Coast Cushion Bush	1	1		1	1				1		1	
<i>Leucopogon parviflorus</i>	Coast Beard-heath												
<i>Lomandra leucocephala ssp. leucocephala</i>	Woolly Mat-rush						1						
<i>Lotus australis</i>	Austral Trefoil							1					
<i>Machaerina juncea</i>	Bare Twig-rush								1	1	1		

Coastal Vegetation Structure Rapid Assessment

Botanical name	Common Name	Zone											
		1	2	3	4	5	6	7	8	9	10	11	12
<i>Melaleuca lanceolata</i>	Dryland Tea-tree	1					1	1	1			1	
<i>Muehlenbeckia gunnii</i>	Coastal Climbing Lignum	1	1	1	1		1						
<i>Myoporum insulare</i>	Common Boobialla	1	1	1	1				1	1			
<i>Myoporum parvifolium</i>	Creeping Boobialla							1	1	1	1	1	1
<i>Nitraria billardiarei</i>	Nitre-bush						1						
<i>Olearia axillaris</i>	Coast Daisy-bush	1	1	1	1			1			1	1	1
<i>Parietaria debilis</i>	Smooth-nettle						1						
<i>Pelargonium australe</i>	Austral Stork's-bill	1			1	1							
<i>Picris squarrosa</i>	Squat Picris							1			1		
<i>Pimelea serpyllifolia ssp. serpyllifolia</i>	Thyme Riceflower						1						
<i>Poa poiformis var. poiformis</i>	Coast Tussock-grass	1						1	1	1	1	1	1
<i>Portulaca oleracea</i>	Common Purslane						1						
<i>Rhagodia candolleana ssp. candolleana</i>	Sea-berry Saltbush	1	1	1	1								
<i>Rytidosperma caespitosum</i>	Common Wallaby-grass												
<i>Santalum acuminatum</i>	Quandong		1					1		1	1	1	1
<i>Salsola australis</i>	Buckbush						1	1		1	1		
<i>Scaevola crassifolia</i>	Cushion Fanflower	1	1	1	1	1	1	1	1	1	1	1	1
<i>Senecio spanomerus</i>	Native Groundsel	1	1			1	1			1	1		
<i>Spinifex hirsutus</i>	Rolling Spinifex	1	1	1	1	1		1		1			1
<i>Tetragonia implexicoma</i>	Bower Spinach						1						
<i>Threlkeldia diffusa</i>	Coast Bonefruit	1	1	1	1	1				1	1	1	1
<i>Triglochin trichophora</i>	Small-spurred Arrowgrass												
<i>Epilobium sp.</i>	Willow Herb	1											
Species Diversity – Indigenous species only		22	25	18	14	10	22	21	16	19	18	19	16

Coastal Vegetation Structure Rapid Assessment

Table 6. Grange to Tennyson Dunes, species presence absence.

Botanical name	Cup Wattle	Zone							
		1	2	3	4	5	6	7	8
<i>Acacia cupularis</i>	Cup Wattle	1	1	1	1		1		
<i>Acacia ligulata</i>	Umbrella Wattle								
<i>Acacia longifolia ssp. sophorae</i>	Coastal Wattle	1	1	1	1		1	1	1
<i>Acacia nematophylla</i>	Coast Wallowa								
<i>Actites megalocarpus</i>	Dune Thistle								
<i>Adriana quadripartita</i>	Coast Bitter-bush								
<i>Allocasuarina verticillata</i>	Drooping Sheoak								
<i>Alyxia buxifolia</i>	Sea Box								
<i>Atriplex cinerea</i>	Coast Saltbush		1	1	1	1	1	1	
<i>Atriplex paludosa</i>	Marsh Saltbush			1					
<i>Austrostipa flavescens</i>	Coast Spear-grass				1				
<i>Austrostipa scabra ssp. falcata</i>	Slender Spear-grass								
<i>Calandrinia eremaea</i>	Dryland Purslane								
<i>Callitris gracilis</i>	Southern Cypress Pine								
<i>Carpobrotus rossii</i>	Pigface	1	1	1	1	1	1	1	1
<i>Cassytha pubescens</i>	Downy Dodder-laurel								
<i>Chrysocephalum apiculatum</i>	Common Everlasting		1						
<i>Clematis microphylla</i>	Old Man's Beard								
<i>Cotula australis</i>	Common Cotula								
<i>Crassula closiana</i>	Stalked Crassula								
<i>Crassula colligata ssp. lamprosperma</i>	Smooth-seed Stonecrop		1						
<i>Crassula colorata var. colorata</i>	Dense Crassula								
<i>Crassula decumbens var. decumbens</i>	Spreading Crassula								
<i>Daucus glochidiatus</i>	Native Carrot								
<i>Dianella brevicaulis</i>	Short-stem Flax-lily	1	1	1	1	1	1	1	1
<i>Disphyma crassifolium ssp. clavellatum</i>	Round-leaf Pigface	1	1						
<i>Distichlis distichophylla</i>	Emu Grass					5			
<i>Dodonaea viscosa ssp. spatulata</i>	Sticky Hop-bush								
<i>Enchylaena tomentosa var. tomentosa</i>	Ruby Saltbush								
<i>Ficinia nodosa</i>	Knobby Clubrush	1	1	1	1	1	1	1	1
<i>Geranium retrorsum</i>	Grassland Geranium								
<i>Helichrysum leucopsidium</i>	Satin Everlasting								
<i>Kennedia prostrata</i>	Running Postman								
<i>Kunzea pomifera</i>	Muntries					1			1
<i>Lepidosperma gladiatum</i>	Coast Sword-sedge						1		
<i>Leucophyta brownii</i>	Coast Cushion Bush	1			1		1	1	1
<i>Leucopogon parviflorus</i>	Coast Beard-heath								
<i>Lomandra leucocephala ssp. leucocephala</i>	Woolly Mat-rush					1		1	
<i>Lotus australis</i>	Austral Trefoil		1						
<i>Machaerina juncea</i>	Bare Twig-rush								
<i>Melaleuca lanceolata</i>	Dryland Tea-tree				1				
<i>Muehlenbeckia gunnii</i>	Coastal Climbing Lignum		1			1	1	1	1
<i>Myoporum insulare</i>	Common Boobialla	1	1	1	1	1	1		1

Coastal Vegetation Structure Rapid Assessment

Botanical name	Cup Wattle	Zone							
		1	2	3	4	5	6	7	8
<i>Myoporum parvifolium</i>	Creeping Boobialla								
<i>Nitraria billardierei</i>	Nitre-bush					1			
<i>Olearia axillaris</i>	Coast Daisy-bush	1	1	1	1	1	1	1	1
<i>Parietaria debilis</i>	Smooth-nettle								
<i>Pelargonium australe</i>	Austral Stork's-bill	1	1		1				1
<i>Picris squarrosa</i>	Squat Picris					1			
<i>Pimelea serpyllifolia</i> ssp. <i>serpyllifolia</i>	Thyme Riceflower								
<i>Poa poiformis</i> var. <i>poiformis</i>	Coast Tussock-grass		1		1	1			1
<i>Portulaca oleracea</i>	Common Purslane								
<i>Rhagodia candolleana</i> ssp. <i>candolleana</i>	Sea-berry Saltbush	1	1	1	1	1	1	1	1
<i>Rytidosperma caespitosum</i>	Common Wallaby-grass								
<i>Santalum acuminatum</i>	Quandong								
<i>Salsola australis</i>	Buckbush								
<i>Scaevola crassifolia</i>	Cushion Fanflower	1	1	1	1			1	1
<i>Senecio spanomerus</i>	Native Groundsel	1	1	1	1	1		1	1
<i>Spinifex hirsutus</i>	Rolling Spinifex	1	1	1	1	1	1	1	1
<i>Tetragonia implexicoma</i>	Bower Spinach								
<i>Threlkeldia diffusa</i>	Coast Bonefruit	1	1	1	1	1		1	
<i>Triglochin trichophora</i>	Small-spurred Arrowgrass								
Species Diversity - Indigenous species only		15	20	14	18	20	13	14	15

Coastal Vegetation Structure Rapid Assessment

Table 7. Tennyson Dunes to Bower Rd, Semaphore Park species presence absence.

Botanical name	Common Name	Zone											
		1	2	3	4	5	6	7	8	9	10	11	12
<i>Acacia cupularis</i>	Cup Wattle	1	1	1	1	1				1		1	1
<i>Acacia ligulata</i>	Umbrella Wattle		1	1	1								
<i>Acacia longifolia</i> ssp. <i>sophorae</i>	Coastal Wattle	1	1	1	1	1			1	1		1	1
<i>Acacia pycnantha</i>	Golden Wattle		1		1								
<i>Acacia nematophylla</i>	Coast Wallowa								1	1	1		1
<i>Actites megalocarpus</i>	Dune Thistle		1										
<i>Adriana quadripartita</i>	Coast Bitter-bush	1	1										
<i>Allocasuarina verticillata</i>	Drooping Sheoak		1		1								1
<i>Alyxia buxifolia</i>	Sea Box	1	1										
<i>Atriplex cinerea</i>	Coast Saltbush	1	1	1	1	1	1	1	1	1	1	1	1
<i>Atriplex paludosa</i> ssp. <i>cordata</i>	Marsh Saltbush												
<i>Austrostipa flavescens</i>	Coast Spear-grass	1	1	1	1	1	1	1	1	1	1	1	1
<i>Austrostipa scabra</i> ssp. <i>falcata</i>	Slender Spear-grass	1		1									
<i>Billardiera cymosa</i> ssp. <i>cymosa</i>	Sweet Apple-berry	1	1								1		
<i>Calandrinia eremaea</i>	Dryland Purslane		1										
<i>Callitris gracilis</i>	Southern Cypress Pine		1										
<i>Carpobrotus rossii</i>	Pigface	1	1	1	1	1	1	1	1	1	1	1	1
<i>Cassytha pubescens</i>	Downy Dodder-laurel	1	1										
<i>Clematis microphylla</i>	Old Man's Beard	1	1										
<i>Cotula australis</i>	Common Cotula	1											
<i>Crassula closiana</i>	Stalked Crassula		1										
<i>Crassula colligata</i> ssp. <i>lamprosperma</i>	Smooth-seed Stonecrop		1										
<i>Crassula colorata</i> var. <i>colorata</i>	Dense Crassula	1	1	1									
<i>Crassula decumbens</i> var. <i>decumbens</i>	Spreading Crassula		1			1							
<i>Daucus glochidiatus</i>	Native Carrot	1	1	1									
<i>Dianella brevicaulis</i>	Short-stem Flax-lily	1	1	1	1	1	1	1	1	1	1	1	1
<i>Disphyma crassifolium</i> ssp. <i>clavellatum</i>	Round-leaf Pigface		1	1								1	
<i>Distichlis distichophylla</i>	Emu Grass		1		1								
<i>Dodonaea viscosa</i> ssp. <i>spatulata</i>	Sticky Hop-bush		1					1					
<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>	Ruby Saltbush		1	1	1	1	1			1			
<i>Ficinia nodosa</i>	Knobby Clubrush	1	1	1	1	1	1	1	1	1	1	1	1
<i>Geranium retrorsum</i>	Grassland Geranium	1											
<i>Helichrysum leucopsidium</i>	Satin Everlasting	1	1		1	1	1		1			1	
<i>Kennedia prostrata</i>	Running Postman		1										
<i>Kunzea pomifera</i>	Muntries	1	1	1	1	1		1		1			
<i>Lepidosperma gladiatum</i>	Coast Sword-sedge	1	1		1		1	1	1		1		1
<i>Leucophyta brownii</i>	Coast Cushion Bush	1	1	1	1			1	1	1			
<i>Leucopogon parviflorus</i>	Coast Beard-heath	1	1		1		1						
<i>Lomandra leucocephala</i> ssp. <i>leucocephala</i>	Woolly Mat-rush		1		1		1	1					

Coastal Vegetation Structure Rapid Assessment

Botanical name	Common Name	Zone											
		1	2	3	4	5	6	7	8	9	10	11	12
<i>Lotus australis</i>	Austral Trefoil	1	1		1		1			1	1		
<i>Machaerina juncea</i>	Bare Twig-rush	1											
<i>Melaleuca lanceolata</i>	Dryland Tea-tree		1	1	1								
<i>Muehlenbeckia gunnii</i>	Coastal Climbing Lignum	1	1		1		1			1	1	1	1
<i>Myoporum insulare</i>	Common Boobialla	1	1							1	1	1	1
<i>Myoporum parvifolium</i>	Creeping Boobialla												
<i>Nitraria billardierei</i>	Nitre-bush		1				1					1	1
<i>Olearia axillaris</i>	Coast Daisy-bush	1	1	1	1	1	1	1	1	1	1	1	1
<i>Parietaria debilis</i>	Smooth-nettle												
<i>Pelargonium australe</i>	Austral Stork's-bill	1	1		1			1	1	1	1	1	1
<i>Picris squarrosa</i>	Squat Picris	1	1				1					1	
<i>Pimelea serpyllifolia</i> ssp. <i>serpyllifolia</i>	Thyme Riceflower		1										1
<i>Poa poiformis</i> var. <i>poiformis</i>	Coast Tussock-grass	1	1	1	1		1	1	1		1	1	1
<i>Portulaca oleracea</i>	Common Purslane		1										
<i>Rhagodia candolleana</i> ssp. <i>candolleana</i>	Sea-berry Saltbush	1	1	1	1	1	1		1	1	1	1	1
<i>Rytidosperma caespitosum</i>	Common Wallaby-grass		1		1								
<i>Santalum acuminatum</i>	Quandong												
<i>Salsola australis</i>	Buckbush												
<i>Scaevola crassifolia</i>	Cushion Fanflower	1	1	1	1			1	1		1	1	1
<i>Senecio spanomerus</i>	Native Groundsel	1	1	1	1	1	1	1	1		1	1	1
<i>Spinifex hirsutus</i>	Rolling Spinifex	1	1	1	1	1	1	1	1		1	1	1
<i>Tetragonia implexicoma</i>	Bower Spinach	1	1	1	1		1	1					
<i>Threlkeldia diffusa</i>	Coast Bonefruit	1	1	1	1	1	1	1	1	1	1	1	1
<i>Triglochin trichophora</i>	Small-spurred Arrowgrass												
Species Diversity - Indigenous species only		36	52	24	31	16	21	18	18	19	18	21	22

Appendix 2: Blank Datasheet.

Botanical name	Zone												Cell observation comments
	1	2	3	4	5	6	7	8	9	10	11	12	
Acacia cupularis													1
Acacia ligulata													
Acacia longifolia ssp. sophorae													
Acacia nematophylla													
Actites megalocarpus													
Adriana quadripartita													2
Allocasuarina verticillata													
Alyxia buxifolia													
Atriplex cinerea													
Austrostipa flavescent													
Austrostipa scabra ssp. falcata													3
Baumea juncea *note now Machaerina													
Calandrinia eremaea													
Callitris gracilis													
Carpobrotus rossii													
Cassytha pubescens													4
Clematis microphylla													
Cotula australis													
Crassula closiana													
Crassula colligata ssp. lamprosperma													
Crassula colorata var. colorata													5
Crassula decumbens var. decumbens													
Daucus glochidiatus													
Dianella brevicaulis													
Disphyma crassifolium ssp. clavellatum													
Distichlis distichophylla													6
Dodonaea viscosa ssp. spatulata													
Enchylaena tomentosa var. tomentosa													
Ficinia nodosa													
Geranium retrorsum													
Helichrysum leucopsidium													7
Kennedia prostrata													
Kunzea pomifera													
Lepidosperma gladiatum													
Leucophyta brownii													
Leucopogon parviflorus													8
Lomandra leucocephala ssp. leucocephala													
Lotus australis													
Melaleuca lanceolata													
Muehlenbeckia gunnii													
Myoporum insulare													9
Myoporum parvifolium													
Nitraria billardierei													
Olearia axillaris													
Parietaria debilis													
Pelargonium australe													10
Picris squarrosa (reveg)													
Pimelea serpyllifolia ssp. serpyllifolia (Thyme Riceflower) (reveg)													
Poa poiformis var. poiformis													
Portulaca oleracea													
Rhagodia candolleana ssp. candolleana													11
Rytidosperma caespitosum													
Santalum acuminatum													
Salsola australis													

Coastal Vegetation Structure Rapid Assessment

Scaevola crassifolia															
Senecio pinnatifolius var. pinnatifolius															12
Spinifex hirsutus															
Tetragonia implexicoma															
Threlkeldia diffusa															
Triglochin trichophora															
General comments: Dune system structure, Risks/ threats – erosion, weeds															