

Corrimal Beach Dune Vegetation Site Plan 2018

August 2018



REVISION HISTORY

<u>VERSION</u>	DATE	COMMENTS	REVISED BY
0.1	February 2015		Aimee Beardsmore
0.2	August 2016	New vegetation mapping and revised actions	Eli Kircher
0.3	June 2017	Revised actions	Martine Fraser
0.4	August 2018	Updated due to adoption of Tree and Vegetation Vandalism Policy	Martine Fraser

Introduction

Council adopted a Wollongong Dune Management Strategy for the Patrolled Swimming Areas of 17 Beaches in March 2014. Management options were identified to address safety and recreational amenity issues, whilst also considering ecological values and the role of dunes in protection against coastal hazards.

Options relating to vegetation management are management of noxious and invasive weed species and management of subspecies of *Acacia longifolia* (Coastal Wattle).

This site plan will guide vegetation management works over the next 24 months which will be undertaken by a number of parties including Council's dune crew and contractors, and Dunecare volunteers.

Vegetation Maps

Vegetation mapping was initially undertaken at Corrimal Beach on 2 and 7 October 2014 to inform works and provide a baseline to monitor progress. The site was divided into Bays as delineated by access paths. Each Bay was divided into patches to indicate the location and abundance of weeds and native plants.

Vegetation mapping was re-done in August 2016 to update the maps and site plans given the large amount of work already completed and to guide future works.

Management Actions and Priorities

Actions have been prioritised taking into consideration the following factors:

1. The overall aim to improve sight lines for lifeguards and lifesavers, recreational amenity and site access.
2. Safety of those working on the site. For example, potential for cuts from old wire and broken glass, and eye injury from sticks and branches.
3. Suitability of actions to be undertaken by different parties. For example, some activities such as spraying and using mechanical equipment cannot be undertaken by Dunecare participants.
4. Severity and type of weed infestation. For example, several Weeds of National Significance (WoNS) are present in the dunes. These include *Chrysanthemoides monilifera* subsp. *rotundata* (Bitou Bush), *Lantana camara* (Lantana), *Asparagus asparagoides* (Bridal Creeper), *Asparagus aethiopicus* (Asparagus Fern), *Senecio madagascariensis* (Fireweed), *Anredera cordifolia* (Madeira Vine) and *Opuntia* species (Prickly Pear).
5. Resources available.
6. Need to minimise weed reinfestation.

General Planting Guidelines

Tube stock should be planted into bare areas at a density of one plant per square metre or one or two per square metre for grasses (NSW DLWC 2001). Planting will only occur in areas where weeds or dead vegetation are removed, or where vegetation vandalism has occurred, in accordance with the Tree and Vegetation Vandalism Policy.

Species to be planted should be selected from Council's adopted dune planting list as shown below (GHD 2014). The site has been divided into up to three management zones to aid selection of species for planting. Location of zones shown on the maps is indicative only.

Zone 1 – no planting

Zone 2 – species from incipient dune list can be planted

Zone 3 – species from fore-dune/crest and incipient dune lists can be planted

It is noted that at the rear of Zone 3 there are native trees which are to be retained. These trees will be under pruned to allow access for weed management and litter removal.

Where planting is to replace tree or vegetation that was subject to vandalism, Council will respond in accordance with the Tree and Vegetation Vandalism Policy, adopted by Council on 23 July 2018. This may result in species selection that varies from these guidelines.

Plant species list for dune planting – Appendix I Dune Management Strategy (GHD 2014)

For the patrolled beach management zones, Council will consider sight line requirements when selecting suitable species for planting. Note that several patrolled beaches do not have a hind dune, and in some patrolled beach management areas, tall-growing variants of subspecies of *Acacia longifolia* have created sight line problems for lifeguard/lifesavers and can exist as a monoculture.

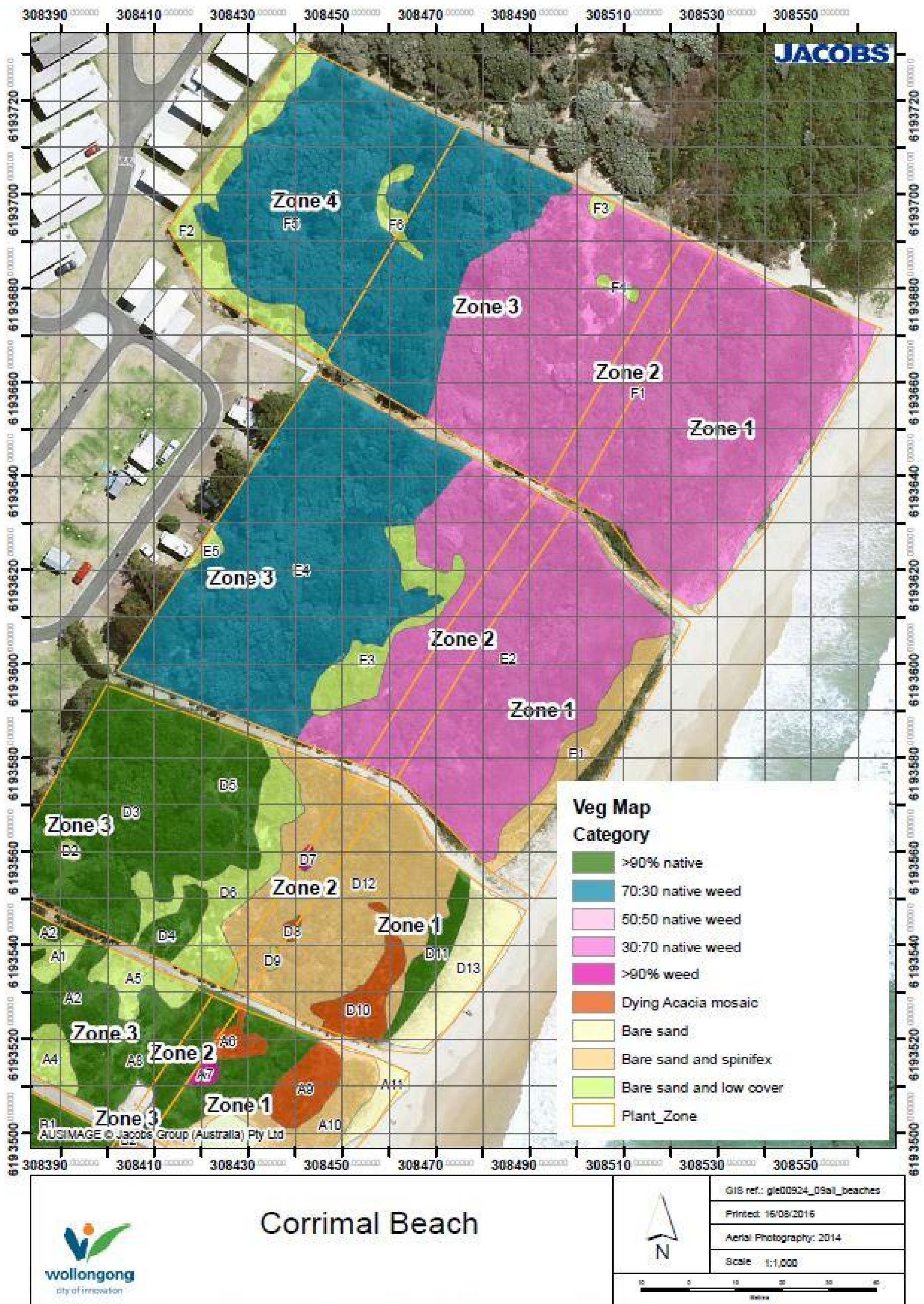
Incipient dune

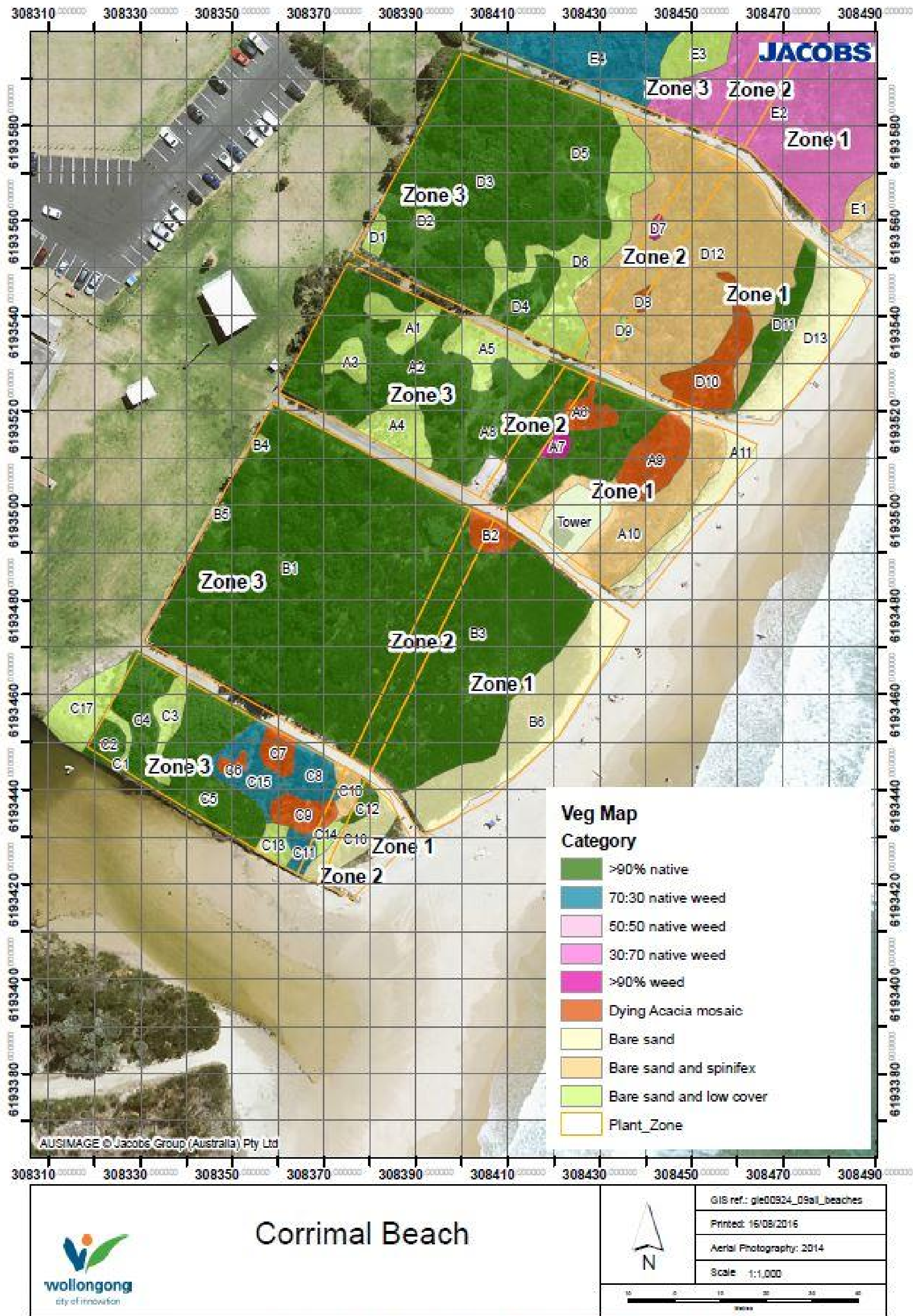
Scientific Name	Common Name
<i>Actites megalocarpus</i>	Coastal Sowthistle
<i>Calystegia soldanella</i>	
<i>Canavalia rosea</i>	Beach Bean
<i>Carex pumila</i>	Strand Sedge
<i>Carpobrotus glaucescens</i>	Pigface
<i>Cynodon dactylon</i>	Couch
<i>Dianella congesta</i>	Coastal Flax Lily
<i>Ficinia nodosa</i>	Clubrush
<i>Melanthera biflora</i>	
<i>Poa billardierei</i>	Coastal Fescue
<i>Scaevola calendulacea</i>	Scented Fanflower

Scientific Name	Common Name
<i>Senecio spathulatus</i>	
<i>Spinifex sericeus</i>	Spinifex
<i>Sporobolus virginicus</i>	Sand Couch
<i>Tetragonia tetragonioides</i>	Warrigal Greens, Warrigal Spinach

Fore-dune and Crest

Scientific Name	Common Name
<i>Atriplex australasica</i>	Saltbush
<i>Breynia oblongifolia</i>	Coffee Bush
<i>Cayratia clematidea</i>	Slender Grape
<i>Commelina cyanea</i>	Scurvy Weed
<i>Correa alba</i> var. <i>alba</i>	White Correa
<i>Dichondra repens</i>	Kidney Weed
<i>Hibbertia scandens</i>	Golden Guinea Flower
<i>Imperata cylindrica</i> var. <i>major</i>	Blady Grass
<i>Leucopogon parviflorus</i>	White-beard
<i>Lomandra longifolia</i>	Mat Rush
<i>Monotoca elliptica</i>	Tree Broom-heath
<i>Monotoca scoparia</i>	
<i>Myoporum boninense</i> subsp. <i>australe</i>	Boobialla
<i>Pelargonium australe</i>	Coastal Geranium
<i>Rhagodia candolleana</i> subsp. <i>candolleana</i>	Seaberry Saltbush
<i>Westringia fruticosa</i>	Coastal Rosemary





Dune Vegetation Management Actions and Priorities – Corrimal Beach

Information for mapping collected on the **6 and 22 of July**; and updates to actions were undertaken annually on the **8 of August 2016, 19 June 2017, and 6 August 2018**.

Priorities are Immediate (I), High (H), Medium (M) and Low (L). Timeframes - Immediate to start within <3 months, High 3-6 months, Medium 6-12 months, Low 12-18 months, subject to availability of resources.

Action statuses are either Ongoing, New, Complete or TBA (to be advised): Ongoing actions are actions stated in the previous dune management plan that remain relevant; New actions are newly arisen since the previous plan creation and currently relevant; Complete actions are completed since the previous plan, but may become relevant again in the future; NA (not applicable) are actions no longer applicable (e.g. due to scheduled dune reshaping works). TBA actions are relevant pending future decisions (e.g. due to threat of vandalism to plants) and funding availability.

Bay A Status	Actions	Priority (I,H,M,L)	Patches within Bay																
			1	2	3	4	5	6	7	8	9	10	11						
Ongoing	Treatment of <i>Chrysanthemoides monilifera</i> subsp. <i>rotundata</i> Bitou Bush seedlings	I						X											
TBA	Installation of low growing plant species in bare areas at the rear of the dunes in Zone 3	L	X		X	X	X												
Ongoing	Treatment of <i>Trachyandra divaricata</i> Onion Weed	H				X													
Ongoing	Treatment of <i>Brassica</i> spp.	H	X			X	X	X	X	X									
Complete	Transplant small native plants from zone 1 to zone 3 (e.g. <i>Spinifex sericeus</i> , <i>Carpobrotus glaucescens</i> , <i>Actities megalocarpus</i>)	I						X	X	X	X	X							
Complete	Installation of <i>Spinifex sericeus</i> & other appropriate low growing species in zone 2 (just behind the new foredune created by re-profiling) following dune reshaping	I								X									
Ongoing	Installation of ground cover and low growing plant species in order to create a native ground cover under the native canopy and displace weedy grasses	I		X															
Ongoing	Maintain recent plantings and maintenance of site to keep clear of weeds around new plantings	I																	
Ongoing	Treatment of weed grasses (e.g. <i>Ehrhata erecta</i>) around native plants	H	X	X	X	X	X												
Ongoing	Treatment of <i>Acetosa sagittata</i> Turkey Rhubarb	H		X															
Complete	Treatment of <i>Chrysanthemoides monilifera</i> subsp. <i>rotundata</i> Bitou Bush and removal of dead material	L																	
Complete	Treatment of mature <i>Lantana camara</i>	L																	
Complete	Removal of <i>Lantana camara</i> seedlings	L																	
Complete	Treatment of <i>Senecio madagascariensis</i> Fireweed	L																	
Complete	Treatment of <i>Asparagus aethiopicus</i> Asparagus Fern	L																	
Complete	Treatment of resprouting <i>Acacia saligna</i>	L																	
Complete	Remove dead <i>Leptospermum laevigatum</i> Teatree																		
Complete	Treatment of <i>Bromus catharticus</i> Prairie Grass	L																	
Bay B Status	Actions	Priority	1	2	3	4	5	6											
Ongoing	Treatment of <i>Trachyandra divaricata</i> Onion Weed	H	X		X														
Ongoing	Treatment of <i>Acetosa sagittata</i> Turkey Rhubarb	H			X														
Ongoing	Removal of <i>Brassica</i> spp.	H	X	X	X		X												
Complete	Transplant small native plants from zone 1 to zone 3 (e.g. <i>Spinifex sericeus</i> , <i>Carpobrotus glaucescens</i> , <i>Actities megalocarpus</i>)	I			X			X											

Ongoing	Installation of <i>Spinifex sericeus</i> in zone 2 following dune reshaping	H			X														
Ongoing	Maintain recent plantings and maintenance of site to keep clear of weeds around new plantings	I																	
Ongoing	Treatment of <i>Asparagus aethiopicus</i> Asparagus Fern	H			X														
Complete	Remove dead <i>Banksia integrifolia</i> Coastal Banksia																		
Complete	Remove dead <i>Leptospermum laevigatum</i> Teatree																		
Complete	Underpruning and removal of wind damaged vegetation, including <i>Banksia integrifolia</i> Coastal Banksia and <i>Leptospermum laevigatum</i> Teatree branches																		
Complete	Removal of <i>Chrysanthemoides monilifera</i> subsp. <i>rotundata</i> Bitou Bush	L																	
Bay C Status	Actions	Priority	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Ongoing	Crush/remove from site, dead and senescent <i>Acacia longifolia</i> subsp. <i>sophorae</i>	H						X	X		X								
Ongoing	Removal of piled timber, dead plant material including underpruning of <i>Leptospermum laevigatum</i> Teatree	H				X													X
TBA	Installation of low growing plant species in bare areas at the rear of the dunes in Zone 3	L	X		X										X				
Ongoing	Treatment of <i>Trachyandra bivaricata</i> Onion Weed	H		X		X			X								X		X
Ongoing	Treatment of <i>Acetosa sagittata</i> Turkey Rhubarb	H					X			X	X	X		X			X		
Ongoing	Treatment of <i>Asparagus aethiopicus</i> Asparagus Fern	H		X			X		X		X			X			X		X
Ongoing	Removal of <i>Brassica</i> spp.	H						X	X	X	X	X					X		X
Ongoing	Prepare area to hand over to Works for inclusion in Council mowing. Remove weeds, roots and transplant natives elsewhere on site	H																	X
Complete	Transplant small native plants from zone 1 to zone 3 (e.g. <i>Spinifex sericeus</i> , <i>Carpobrotus glaucescens</i> , <i>Actites megalocarpus</i>)	I												X				X	
Ongoing	Installation of <i>Spinifex sericeus</i> in zone 2 following dune reshaping	I																	
Ongoing	Remove annual weeds from around native grasses and ground covers	H						X	X		X						X		
Ongoing	Treatment of <i>Cestrum parqui</i> Green Cestrum								X										
Complete	Removal of <i>Chrysanthemoides monilifera</i> subsp. <i>rotundata</i> Bitou Bush seedlings																		
Complete	Treatment of <i>Senecio madagascariensis</i> Fireweed																		
Complete	Removal of <i>Coprosma repens</i> Mirror Bush																		
Bay D Status	Actions	Priority	1	2	3	4	5	6	7	8	9	10	11	12	13				
TBA	Installation of low growing plant species at the rear of the dunes in Zone 3	L	X	X															
Ongoing	Treatment of <i>Lantana camara</i> seedlings	I						X											
Ongoing	Treatment of <i>Chrysanthemoides monilifera</i> subsp. <i>rotundata</i> Bitou Bush seedlings	I						X	X	X	X		X	X					
Ongoing	Treatment of <i>Asparagus aethiopicus</i> Asparagus Fern	H					X		X										

Ongoing	Treatment of <i>Senecio madagascariensis</i> Fireweed	H																	
Ongoing	Removal of <i>Brassica</i> spp.	H						X				X							
Ongoing	Treatment of <i>Acetosa sagittata</i> Turkey Rhubarb	H								X			X						
Ongoing	Treatment of <i>Asparagus asparagoides</i> Bridal Creeper	H		X															
Ongoing	Treatment of <i>Araujia sericifera</i> Moth Vine	H			X														
Complete	Transplant small native plants from zone 1 to zone 3 (e.g. <i>Spinifex sericeus</i> , <i>Carpobrotus glaucescens</i> , <i>Actities megalocarpus</i>)	I								X	X	X	X	X					
Ongoing	Installation of <i>Spinifex sericeus</i> in zone 2 following dune reshaping	I												X					
Ongoing	Installation of ground cover and low growing plant species in order to create a native ground cover under the canopy and displace weedy grasses	H			X														
Ongoing	Treatment of weed grasses (e.g. <i>Ehrhata erecta</i>) around native plants	H		X	X														
Ongoing	Distribution of mulch pile around native plantings as needed	H	X																
Complete	Removal of dead plant material including underpruning of <i>Leptospermum laevigatum</i> Teatree																		
Complete	Remove <i>Acacia saligna</i>																		
Complete	Treatment of mature <i>Lantana camara</i>																		
Complete	Treatment of mature <i>Chrysanthemoides monilifera</i> subsp. <i>rotundata</i> Bitou Bush																		
Complete	Treatment of <i>Trachyandra divaricata</i> Onion Weed	L																	
Bay E Status	Actions	Priority	1	2	3	4	5												
Complete	Transplant small native plants from zone 1 to zone 3 (e.g. <i>Spinifex sericeus</i> , <i>Carpobrotus glaucescens</i> , <i>Actities megalocarpus</i>)	I		X															
Ongoing	Installation of <i>Spinifex sericeus</i> in zone 2 following dune reshaping	M		X															
Ongoing	Treatment of mature <i>Chrysanthemoides monilifera</i> ssp. <i>rotundata</i> Bitou Bush	I	X	X		X													
Ongoing	Treatment of <i>Chrysanthemoides monilifera</i> ssp. <i>rotundata</i> Bitou Bush seedlings	I			X														
Ongoing	Treatment of <i>Asparagus aethiopicus</i> Asparagus Fern	H		X		X													
Ongoing	Treatment of <i>Acetosa sagittata</i> Turkey Rhubarb, disposing of seeds and tubers	H		X		X													
Ongoing	Treatment of <i>Lantana camara</i>	H				X	X												
Ongoing	Treatment of <i>Araujia sericifera</i> Moth Vine	H				X	X												
Ongoing	Appropriate disposal of <i>Araujia sericifera</i> Moth Vine seed pods	I					X												
Ongoing	Treatment of <i>Solanum seaforthianum</i> Brazilian Nightshade	H				X													
Ongoing	Treatment of <i>Brassica</i> sp.	H		X															
TBA	Installation of low growing plant species at the rear of the dunes in Zone 3, in bare areas and following weed removal	L			X		X												

Bay F Status	Actions	Priority	1	2	3	4	5	6												
Complete	Transplant small native plants from zone 1 to zone 3 (e.g. <i>Spinifex sericeus</i> , <i>Carpobrotus glaucescens</i> , <i>Actites megalocarpus</i>)	L	X																	
Ongoing	Installation of <i>Spinifex sericeus</i> in zone 2 following dune reshaping	I	X																	
Ongoing	Treatment of <i>Chrysanthemoides monilifera</i> ssp. <i>rotundata</i> Bitou Bush	I	X	X	X	X	X													
Ongoing	Treatment of <i>Asparagus aethiopicus</i> Asparagus Fern	M	X	X	X		X	X												
Ongoing	Treatment of large clumps of <i>Asparagus aethiopicus</i> Asparagus Fern	M	X	X	X		X													
Ongoing	Treatment of <i>Acetosa sagittata</i> Turkey Rhubarb, disposing of seeds and tubers	M	X			X														
Ongoing	Treatment of <i>Lantana camara</i>	M	X				X													
Ongoing	Treatment of <i>Araujia sericifera</i> Moth Vine	M					X													
Ongoing	Treatment of <i>Brassica</i> sp.	M	X	X																
TBA	Installation of low growing plant species at the rear of the dunes in Zone 3, in bare areas and following weed removal	L		X	X	X		X	X											

General actions across the whole site

Status	Actions	Priority (I, H, M, L)
Ongoing	Ensure no spread of vegetation seaward in profiled bays	I
Ongoing	Litter removal	I
Ongoing	Removal of annual weeds, eg. <i>Solanum</i> spp., <i>Bidens pilosa</i> , <i>Conyza</i> spp.	M
Ongoing	Removal of <i>Ammophila arenaria</i> Marram Grass	M
Ongoing	Treatment of weed grasses eg. <i>Ehrharta erecta</i> around native plants	M
Ongoing	Management of regenerating taller growing native plants	L
Complete	Removal of old fence wire	L

References

GHD (2014) Wollongong Dune Management Strategy for the Patrolled Swimming Areas of 17 Beaches. Adopted by Wollongong City Council March 2014.

NSW Department of Land and Water Conservation (2001), Coastal Dune Management: A Manual of Coastal Dune Management and Rehabilitation Techniques, Coastal Unit, DLWC, Newcastle.