



A guide to selection for revegetation projects

Communities of plants that grow on beaches and dunes are known as dune vegetation. There are usually three main zones of dune vegetation that are arranged roughly parallel to the coastline namely Strandline, Front Dune and Hind Dune.

Zone patterns may be more complex than the three zones of vegetation shown in the list. The zones reflect changes in the nutrient status and moisture content of dune soils, which increase in a landward direction and changes in the degree of exposure to strong winds, salt spray and sandblast, which decrease in a landward direction. Dune vegetation is also subjected to the constantly changing nature of the beach and dune environment.

Hind Dunes usually remain fairly intact when they are protected by a stable frontal dune and the plants in this zone have better access to soil moisture and nutrients than plants that colonise the fore dunes and strandline. Plants that colonise the strandline are extremely hardy and can tolerate salt spray, strong winds and sand abrasion. The common plant species found in these zones along the Clarence Coast are listed in the main table.

The zones generally consist of:

- 1. Strandline.** Herbaceous stabilising plants tolerant of strong winds, sandblast, salt spray and occasional inundation by seawater form the strandline/incipient zone which is nearest the sea e.g. Pigface, Beach Spinifex, Guinea flower, Sesuvium.
- 2. Front Dune.** Scrub or woodland plants on frontal sand dunes, including windswept shrubs and stunted trees e.g. *Casuarina*, *Banksia*, some heath species, vines and herbs.
- 3. Hind Dune.** Coastal heath or forest plants consisting of stunted trees and low shrubs e.g. *Melaleuca* sp. in swampy areas and *Eucalyptus*, *Banksia* and *Acacia* spp. on higher ridges, behind the frontal dunes.

Some of the less resilient species may be added to a planting area when vegetation is suitably established to provide protection. Other species may start to colonise the area naturally because of favourable conditions created e.g. ferns, scramblers and lilies or they may be planted at the secondary stage.

Littoral Rainforest

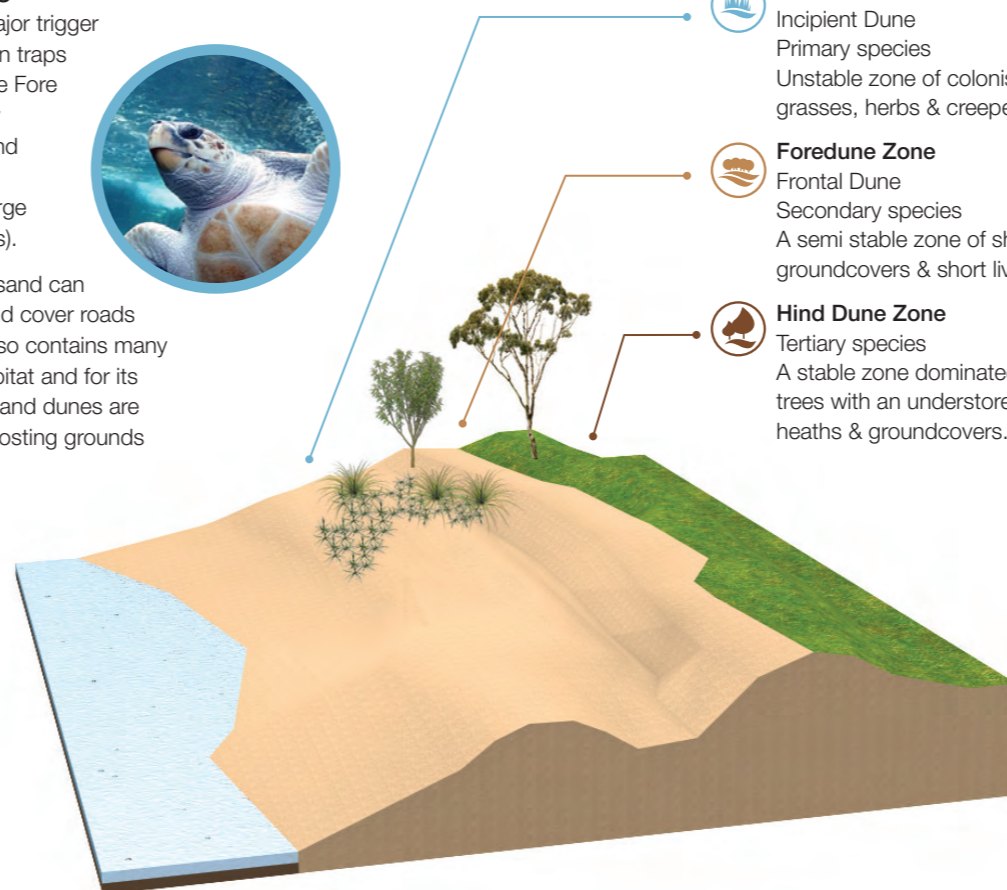
Littoral Rainforest mostly occurs within 2 kilometres of the sea, but can be found further inland where there is maritime influence. These endangered forests have a moderate to low species-richness with similar species to Subtropical Rainforests sometimes grading into other Rainforest systems with increasing distance from the coast. Urban development and sand mining have considerably reduced the naturally fragmented distribution of Littoral Rainforests along the coast. Please refer to the listed publications for further reading and specific Littoral Rainforest species selection.

Blady Grass, *Imperata cylindrica* and Bracken, *Pteridium esculentum* tend to dominate disturbed and frequently burnt sites and don't usually need to be planted.

The Importance of Dune Vegetation

The loss of dune vegetation is a major trigger for dune erosion as dune vegetation traps windblown sand and holds it on the Fore Dunes. Exposed, dry sand is easily mobilised by high-velocity winds and large volumes of sand can be transported, sometimes forming large depressions in the dunes (blowouts).

Downwind from blowouts, drifting sand can smother surrounding vegetation and cover roads and properties. Dune vegetation also contains many native species and is valued as habitat and for its own intrinsic biodiversity. Beaches and dunes are important feeding, breeding and roosting grounds for sea turtles and shorebirds.



Strandline Zone

Incipient Dune
Primary species
Unstable zone of colonising grasses, herbs & creepers

Foredune Zone

Frontal Dune
Secondary species
A semi stable zone of shrubs, groundcovers & short lived trees

Hind Dune Zone

Tertiary species
A stable zone dominated by trees with an understorey of shrubs, heaths & groundcovers.

Coastal Beard-heath
Leucopogon parviflorus



Cheese Tree
Glochidion ferdinandii



Ruddy Turnstone
Arenaria interpres



Golden Everlasting
Xerochrysum bracteatum



Pied Oystercatcher
Haematopus longirostris



Spiny Mat Rush
Lomandra longifolia



Beach Spinifex
Spinifex sericeus



Beach Birds-eye
Alectryon coriaceus



Pig Face
Carpobrotus glaucescens



Coastal Wattle
Acacia longifolia subsp. *sophorae*



Coast Banksia
Banksia integrifolia



Pandanus
Pandanus tectorius



General Disclaimer: Information in this publication is intended as general advice only. For specific circumstances please seek appropriate advice. In compiling this information, the author has taken all reasonable steps to ensure accuracy at the time of publication.



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CARING FOR OUR COUNTRY

CLARENCE COAST DUNE PLANTS



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STRANDLINE ZONE A~Z	FOREDUNE ZONE L~Z	HIND DUNE ZONE B~L
Primary species Unstable zone of colonising grasses, herbs & creepers	<i>Myoporum boninense</i> subsp. <i>australe</i> Coast Boobialla	<i>Casuarina glauca</i> Swamp Oak
<i>Carpobrotus glaucescens</i> Pigface	<i>Pimelea linifolia</i> Slender Rice Flower	<i>Chrysocephalum apiculatum</i> (<i>Helichrysum apiculatum</i>) Yellow Buttons
<i>Canavalia rosea</i> Coastal Beach Bean	<i>Rhagodia candolleana</i> Seaberry Saltbush	<i>Clerodendrum floribundum</i> Smooth Clerodendrum
<i>Carex pumila</i> Dune Sedge	<i>Scaevola calendulacea</i> Beach Fan Flower	<i>Commelina cyanea</i> Australian Commelina
<i>Ipomoea pes – caprae</i> subsp. <i>brasiliensis</i> Native Morning Glory	<i>Senecio lautus</i> Coastal Fireweed	<i>Corymbia intermedia</i> Pink Bloodwood
<i>Sesuvium portulacastrum</i> Sea Purslane	<i>Sophora tomentosa</i> ** Coastal Sophora, Silver Bush	<i>Cryptocarya triplinervis</i> Three-veined Laurel
<i>Spinifex sericeus</i> Beach Spinifex	<i>Stackhousia spathulata</i>	<i>Cupaniopsis anacardioides</i> Tuckeroo
<i>Tetragonia tetragonioides</i> NZ Spinach, Warrigal Green	<i>Stephania japonica</i> Stephania, Snake Vine (& hind dune)	<i>Dodonaea triquetra</i> Hop Bush
<i>Vigna marina</i> Yellow Beach Bean	<i>Zoysia macrantha</i> Prickly Couch	<i>Elaeocarpus obovatus</i> Hard Quandong
	HIND DUNE ZONE A~B	<i>Elaeocarpus reticulatus</i> Blueberry Ash
FOREDUNE ZONE A~L	Tertiary species A stable zone dominated by trees with an understorey of shrubs, heaths & groundcovers.	<i>Elaeodendron australe</i> (<i>Cassine australe</i>) Red Olive Plum
Secondary species A semi stable zone of shrubs, groundcovers & short lived trees	<i>Acacia suaveolens</i> Sweet Scented Wattle	<i>Endiandra sieberi</i> Hard Corkwood
<i>Acacia longifolia</i> subsp. <i>sophorae</i> Coastal Wattle	<i>Acacia ulicifolia</i> Prickly Moses	<i>Euroschinus falcata</i> var. <i>falcata</i> Ribbonwood
<i>Actites megalocarpa</i> (<i>Sonchus megalocarpus</i>) Beach Sow Thistle	<i>Actinotuis helianth</i> Flannel Flower	<i>Eucalyptus tereticornis</i> Forest Red Gum
<i>Carpobrotus glaucescens</i> Pigface	<i>Acmena smithii</i> Lilly Pilly	<i>Eucalyptus robusta</i> Swamp Mahogany
<i>Canavalia rosea</i> Coastal Beach Bean	<i>Aotus ericoides</i> Common Aotus	<i>Eustrephus latifolius</i> Wombat Berry
<i>Carex pumila</i> Dune Sedge	<i>Allocasuarina littoralis</i> Black She Oak	<i>Ficus rubiginosa</i> Port Jackson, Rusty Fig
<i>Dianella congesta</i> Flax Lily	<i>Acronychia imperforata</i> Beach Acronychia	<i>Geitonoplesium cymosum</i> Scrambling Lily
<i>Dianella caerulea</i> Blue Flax Lily (& hind dune)	<i>Alectryon coriaceus</i> Beach Birds-eye	<i>Glochidion ferdinandi</i> Cheese Tree
<i>Enchylaena tomentosa</i> Ruby Salt Bush	<i>Alphitonia excelsa</i> Red Ash	<i>Glochidion sumatranum</i> var. <i>parakense</i> Umbrella Cheese Tree
<i>Casuarina equisetifolia</i> subsp. <i>incana</i> Horsetail She-oak	<i>Angophora costata</i> Smooth-barked Apple	<i>Glycine tomentella</i> Woolly Glycine, Twining
<i>Hibbertia scandens</i> Climbing Guinea Flower (& hind dune)	<i>Angophora subvelutina</i> Broad-leaved Apple	<i>Hardenbergia violacea</i> False Sarsaparilla
<i>Ipomoea pes – caprae</i> subsp. <i>brasiliensis</i> Native Morning Glory	<i>Breynia oblongifolia</i> Breynia	<i>Homoranthus virgatus</i> Homoranthus
<i>Ischaemum triticeum</i> Thigh-socket Grass	<i>Banksia aemula</i> Wallum Banksia	<i>Hoya australis</i> Native Hoya
<i>Isolepis nodosa</i> Knobby Club-rush	<i>Banksia integrifolia</i> Coast Banksia	<i>Hydrocotyle acutiloba</i> Hydrocotyle
<i>Leucopogon parviflorus</i> Coastal Beard-heath	<i>Banksia serrata</i> Old-man Banksia	<i>Imperata cylindrica</i> Bladey Grass
<i>Melanthera biflora</i> Sea Daisy	<i>Banksia spinulosa</i> Hairpin Banksia	<i>Kennedia rubicunda</i> Dusky Coral Pea
	<i>Callitris columellaris</i> Coastal Cypress Pine	<i>Lepidosperma laterale</i> (sedge)
		<i>Lophostemon confertus</i> Brush Box

LEGEND

Strandline Zone	Heath	* Minnie Water only
Foredune Zone	Littoral Rainforest	** Iluka, Sandon, Brooms Head, Minnie Waters mainly.
Hind Dune Zone	Vine	All other plants listed are found growing along the Clarence coast from Iluka to Red Rock. Some species that grow in the Hind Dune may also be found in other zones.
Swamps & Seepage Zone	Groundcover	
Tree	Grasses	
Shrub	Herb	

HIND DUNE ZONE L~P	HIND DUNE ZONE P~Z	SWAMP & SEEPAGE ZONE
<i>Leptospermum polygalifolium</i> subsp. <i>cismontanum</i> Tantoon	<i>Polyscias elegans</i> Celery Wood, Silver Basswood	Species located in this zone
<i>Lomandra filiformis</i> Wattle Mat Rush	<i>Pteridium esculentum</i> Bracken	<i>Adiantum hispidulum</i> Rough Maidenhair
<i>Lomandra longifolia</i> Spiny Mat Rush	<i>Rhus parvifolius</i> Native Raspberry (scrambler)	<i>Banksia ericifolia</i> Heath-leaved Banksia
<i>Mallotus discolor</i> White Kamala	<i>Ripogonum album</i> Supplejack	<i>Banksia oblongifolia</i> Swamp Banksia
<i>Melaleuca nodosa</i> Yellow Paperbark	<i>Smilax glycyphylla</i> Sweet Sarsaparilla	<i>Blechnum indicum</i> Bungwahl Fern
<i>Melaleuca quinquenervia</i> Broad-leaved Paperbark	<i>Sophora tomentosa</i> ** Coastal Sophora, Silver Bush	<i>Crinum pedunculatum</i> River/Spider Lily
<i>Myrsine variabilis</i> (<i>Rapanea variabilis</i>) Tuckeroo	<i>Stephania japonica</i> Stephania, Snake Vine	<i>Gahnia sieberiana</i> Red-fruited saw-sedge
<i>Monotoca elliptica</i> Monotoca	<i>Synoum glandulosum</i> subsp. <i>glandulosum</i> Scentless Rosewood	<i>Melastoma affine</i> Blue Tongue
<i>Notelaea longifolia</i> Large-leaved Mock Olive	<i>Syzium oleosum</i> Blue Lily Pily	<i>Grevillea humilis</i> subsp. <i>maritime</i> Angourie Grevillea (moist coastal)
<i>Oplismenus aemulus</i> <i>O. imbecillis</i> Basket Grasses	<i>Syzgium luehmannii</i> Riberry	<i>Gleichenia dicarpa</i> Pouched Coral Fern
<i>Pandanus tectorius</i> var. <i>australianus</i> Pandanus, Screw Pine (& Fore Dunes)	<i>Themeda australis</i> Kangaroo Grass (headlands)	<i>Gleichenia microphylla</i> Scrambling Coral Fern
<i>Pandorea pandorana</i> Wonga Wonga Vine	<i>Viola hederacea</i> Ivy-leaved Violet	<i>Hydrocotyle acutiloba</i> Hydrocotyle
<i>Parsonia straminea</i> Common Silkpod Vine		<i>Olax angulata</i> * (sandy soils and woodland near swamps)
<i>Persoonia stradbrokeiensis</i> Geebung		<i>Xerochrysum bracteatum</i> Golden Everlasting (headlands and other niches)
<i>Persoonia virgata</i> Pine-leaved Geebung		
<i>Pittosporum undulatum</i> Sweet Pittosporum		

This list may be useful as a guide to species selection for revegetation projects and is not a full list of all coastal species. Further reading is recommended to identify plants that you may find growing within the dune systems including weeds. See reference and resource list for further information, reading and contacts.



References and Resources

Books

Carolin, R & Clarke, P., (1991), *Beach Plants of South Eastern Australia*, published by Sainty & Associates, Potts Point NSW Australia.

Harden, G., McDonald, B. & Williams, W. (2006) *Rainforest trees and shrubs: A field guide to their identification*, Gwen Harden Publishing Nambucca Heads.

Harden, G., McDonald, B. & Williams, W. (2007) *Rainforest climbing plants: A field guide to their identification*, Gwen Harden Publishing Nambucca Heads.

Websites

PlantNET National Herbarium of NSW Flora Online
<http://plantnet.rbgsyd.nsw.gov.au>

The Importance of Dune Vegetation, in Coastal Sand Dunes - their vegetation and management. QLD EPA & Beach Protection Authority. http://www.ehp.qld.gov.au/coastal/ecology/beaches-dunes/beach_conservation.html

Coastal Dune Management; a series of technical notes
http://www.ehp.qld.gov.au/coastal/ecology/beaches-dunes/beach_conservation.html#coastal

What is coastal dune vegetation?
http://www.ozcoasts.gov.au/indicators/beach_dune.jsp

A comprehensive listing and description for threatened plant species and communities, including Littoral Rainforests can be found at; http://www.threatenedspecies.environment.nsw.gov.au/tsprofile/home_species.aspx

CRC for Australian Weed Management at www.weedscrc.org.au

Weeds Australia at www.weeds.org.au

Useful local contacts

Clarence Landcare Inc.
www.clarencelandcare.com.au
Phone: 02 6643 5009

Clarence Valley Council
www.clarence.nsw.gov.au
Phone: 02 6643 0200 (general enquiries)

Northern Rivers Catchment Management Authority
www.northern.cma.nsw.gov.au
Phone: 02 6642 0622

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