

Guidelines



Revegetation in coastal areas

G-7.3

Revegetation is sometimes required where natural regeneration is too slow to keep up with erosion, or there are not enough suitable plants nearby to provide sufficient seed for natural regeneration. Natural regeneration is preferable because it is more efficient and cost-effective than planting; and almost always more successful. Revegetation can be used to rehabilitate an area that has been cleared or disturbed, to improve native species cover, such as when weed removal has taken place.

Revegetation in coastal areas has unique considerations. If revegetation is required then the following environmental issues must be considered to improve the chances of success and minimise impacts on the coastal environment.

Use these guidelines in conjunction with the information provided in Chapter 7 when planning works and engaging consultants and contractors to ensure the proposed works use the most effective methods and minimise the risk of causing damage to coastal values.

Planning

Coastal vegetation is highly adapted to the windy salt laden conditions, sandy soils or specialised environments such as wetlands and saltmarsh.

Coastal vegetation grows in zones based on proximity to the sea. It is important that species are planted in the correct zones to increase the chance of survival.

Careful planning of revegetation works is critical to success and to avoid loss of money and effort. Review existing vegetation maps to identify local vegetation communities and seek specialist advice from botanists.

It may be possible to assist natural regeneration which is more cost-effective than active revegetation.

Protecting coastal values

Identify natural or wildlife values in the area that may be affected by the revegetation works.

Contact Aboriginal Heritage Tasmania before commencing works to determine if there are values in the area or if your works are likely to impact on heritage values. If a new relic is discovered stop work and contact Aboriginal Heritage Tasmania.

Identify any natural values or threatened species that require protection. Some dunes that appear to be degraded might be naturally unstable areas, of high geoconservation significance. Check the Tasmanian Geoconservation Database.

Bare sand patches and blowouts can occur naturally, and are essential nesting sites for some shorebirds, including hooded plovers and pied oystercatchers, which are declining in numbers. Seek specialist advice. There are particular considerations when working around penguins and shorebirds covered in Chapter 10 of the *Tasmanian coastal works manual*.

Revegetation techniques

Revegetation can be in the form of direct seeding or planting of tube-stock which both require site preparation, or by laying seed laden brush.

Direct seeding

Direct seeding involves the spreading of seeds, either by hand or with machinery, and has the advantage of providing a diversely structured vegetation community.

The plants are usually very healthy but take a long time to establish which may result in competition from weeds. Due to the need to prepare the soil by clearing, direct seeding is best suited to large areas and should be avoided on sandy soils in coastal environments.

Planting tube-stock

Planting tube-stock is more expensive than direct seeding and can sometimes provide a less natural outcome, with less diversity of species.

This type of planting is labour intensive and only requires simple tools so is very well suited to community groups. Plantings are highly visible which is great promotion for the rehabilitation activities.

Disclaimer

Any representation, statement, opinion or advice, expressed or implied in this publication is made in good faith, but on the basis that the Department of Primary Industries, Parks, Water and Environment its agents and employees are not liable (whether by reason of negligence, lack of care, or otherwise) to any person or for any damage or loss whatsoever which has occurred or may occur in relation to that person taking or not taking (as the case may be) action in respect of any representation or advice referred to herein.



G-7.3

Revegetation in coastal areas

Due to concerns with machines accessing the coast and the potential to cause erosion of sandy soils, tube-stock planting is often preferable to direct seeding in coastal environments.

Seed laden brush

Another technique that works well in coastal dune environments is the laying of seed laden brush. There is no site preparation required. This method suits areas where there is ample supply of native vegetation nearby with ripe seed to provide the prunings and branches. The advantage of this technique is that the brush also traps sand and can be used as a simple barrier to prevent access to fragile or rehabilitated areas.

Improving success of revegetation

Choose suitable species that are native to the local area. These are adapted to the local environmental conditions.

It is a waste of time revegetating the front edge of a dune exposed to heavy wave action or coastal recession (ongoing erosion).

Plan well ahead to order plants or propagate them (refer to Guideline 7.1 Plant propagation). It can take up to a year to produce plants ready for planting.

Prepare the site by removing weeds, and stabilising the soil, if necessary (e.g. with brush mulching). Plant only when the soil is moist, usually during late autumn and winter.

Plant the appropriate species in the right place. On exposed bare sites, plant only primary species to stabilise the soil and provide a buffer for secondary species, which are usually planted in the following years. Refer to Table 7.1 'Recommended places to plant species on coastal dunes' on page 3.

Secondary species are suitable for planting on the seaward side of the foredune but only if the primary vegetation is in place to provide shelter.

Tertiary species can be planted later if conditions are suitable for their growth. In sheltered sites, most of these species can be planted at the same time.

Use good quality plants—not ones that are root-bound, or in flower, or suffering from insect attack or disease. Ideally, use plants with an equal amount of leaves and roots.

If the pot is 125 mm high, for instance, the plant should be 125–200 mm high. If the plant is too tall, trim to less than 150 mm, but make sure it has enough leaves to survive. More information on planting tube-stock is available in Guideline 7.2 Planting tube-stock.

Plant a wide range of local native species and types of plants, including trees, shrubs, grasses and other groundcovers, where appropriate.

Monitoring

Follow-up monitoring, to find out whether revegetation is successful, and weed control are essential for years afterwards, and critical for success. Maintenance programs should be prepared and implemented at least annually.

- Map the revegetation works using a GPS.
- Take photos from established photo points.
- Assess success of plantings
- Determine whether there are any new weed invasions
- Determine what new works are required and when

More Information

Community Coastcare handbook, Thorp 2006

FloraBank

www.florabank.org.au

Revegetation techniques: A guide for establishing native vegetation in Victoria, Greening Australia 2003

Tasmanian coastal works manual: Chapter 7, Page & Thorp 2010

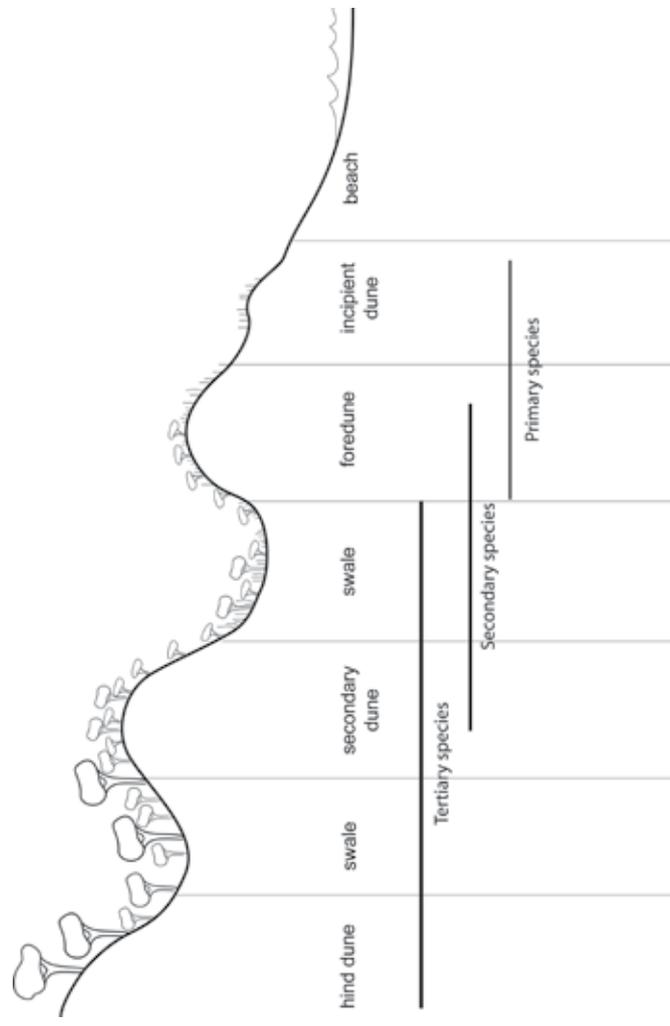
Vegetation of Tasmania, Reid et al. 1999

Disclaimer

Any representation, statement, opinion or advice, expressed or implied in this publication is made in good faith, but on the basis that the Department of Primary Industries, Parks, Water and Environment its agents and employees are not liable (whether by reason of negligence, lack of care, or otherwise) to any person or for any damage or loss whatsoever which has occurred or may occur in relation to that person taking or not taking (as the case may be) action in respect of any representation or advice referred to herein.

Zone	Scientific name	Common name
Primary species Sand and salt tolerant. Plant on seaward side of foredune in unstable sand.	<i>Spinifex sericeus</i> * <i>Austrofestuca littoralis</i> <i>Carpobrotus rossii</i> <i>Tetragonia implexicoma</i> <i>Atriplex cinerea</i>	spinifex coast fescue native pigface bower spinach grey saltbush
Secondary species Tolerate salt spray. Plant on foredune behind established primary species.	<i>Senecio pinnatifolius</i> <i>Poa poiformis</i> <i>Distichlis distichophylla</i> <i>Isolepis nodosa</i> <i>Acacia longifolia</i> subsp. <i>sophorae</i> <i>Acaena novae-zelandiae</i> <i>Pelargonium australe</i> <i>Leucopytha brownii</i> (northern Tasmania) <i>Lomandra longifolia</i> <i>Kennedia prostrata</i> <i>Austrostipa flavescens</i> <i>Rhagodia candolleana</i> <i>Ozothamnus turbinatus</i> <i>Olearia axillaris</i> (northern Tasmania) <i>Correa alba</i> <i>Leucopogon parviflorus</i> <i>Dianella</i> species (confirm coastal types)	coast groundsel coast tussock grass salt grass knobby clubbrush coast wattle buzzy native geranium cushion bush common sagg running postman yellow spear grass seaberry saltbush coast everlasting coast daisy bush white Correa coast beard-heath flax-lilies
Tertiary species Need protection from wind and salt spray. Plant behind foredune crest once primary and secondary species established. Plant on second dune.	<i>Banksia marginata</i> <i>Myoporum insulare</i> <i>Leptospermum scoparium</i> Tasmania) <i>Allocasuarina verticillata</i> <i>Doonanea viscosa</i> var. <i>spathulata</i> <i>Acacia dealbata</i>	silver banksia boobyalla manuka coast tea-tree
Plant on hind dunes.	<i>Bursaria spinosa</i> <i>Acacia verticillata</i> subsp. <i>verticillata</i> <i>Acacia melanoxylon</i> or other local <i>Acacia</i> species Local <i>Eucalyptus</i> species	drooping she-oak native hop silver wattle prickly box prickly moses blackwood eucalypts

Table 7.1 Recommended places to plant species on coastal dunes. Most species, apart from *Spinifex* and *Austrofestuca*, can also be planted further back. Some species are found nearer the sea, but they will establish better if planted further inland. Please note not all species are local to your area. Source: *Community Coastcare handbook*, Thorp 2006 based on Kirkpatrick & Harris 1999. In Reid et al. *Vegetation of Tasmania*, 1999.



Zones where plants grow on coastal dunes. Based on Kirkpatrick & Harris 1999. In Reid et al. *Vegetation of Tasmania*, 1999.

Disclaimer

Any representation, statement, opinion or advice, expressed or implied in this publication is made in good faith, but on the basis that the Department of Primary Industries, Parks, Water and Environment its agents and employees are not liable (whether by reason of negligence, lack of care, or otherwise) to any person or for any damage or loss whatsoever which has occurred or may occur in relation to that person taking or not taking (as the case may be) action in respect of any representation or advice referred to herein.



Checklist

C-7.3

Monitoring revegetation

Revegetation is often quite difficult on the coast. Simple methods can be used to monitor the progress of revegetation and identify if the methods used are successful. It is important to keep good records of works completed, and the progress of revegetation, to find out whether the methods used are successful. Revegetation practices can then be modified to achieve the best results.

Use this checklist in conjunction with the accompanying guidelines and the information provided in Chapter 7 when undertaking works and engaging consultants and contractors to ensure works adhere to the most effective methods and minimise the risk of causing damage to coastal values.

Monitoring parameters

Record as many as possible of the following parameters

- Site map of where revegetation works undertaken
- Type and timing of ground preparation
- Weed control methods
- Climatic conditions before and just after planting
- Date of seeding or planting
- Planting methods
- Type of tree guard, if used
- Type and quantity of mulch
- Type of fertiliser, if used
- Whether the plants were watered in, and details of any subsequent watering
- Details of the supplier of the seeds or plants
- Size and quality of seedlings
- Source of the seed (ask the supplier)
- Number of individuals of each species planted

Monitoring techniques

- Vegetation mapping
- Photopoints (take photos of the site at regular intervals from same location)

Vegetation mapping

Use a GPS to record

- Locations of existing vegetation
- New plantings
- Photopoints
- Other important features

Ongoing monitoring

- Monitoring schedule incorporated into work plans to ensure that regular monitoring takes place
- Check the height of the best performing species 6 mths after planting and then 2–3 years after planting
- Survival of each species, including location and density
- Health of individual plants and extent of flowering
- Height of seedlings

Other monitoring programs

Make use of existing monitoring programs where appropriate such as Greening Australia's Enviromark system.

A simple method for regeneration of eucalypts is described in Greening Australia's Monitoring Regeneration that could be adapted for other species.

Ecological monitoring projects undertaken by vegetation ecologists might be suitable for your site. The University of Tasmania may have programs or students that can provide an ecological monitoring service as part of their curriculum.

More Information

A technical manual for vegetation monitoring, Barker 2001

A users guide to monitoring vegetation, McCoull & Barnes 2002

Introduction to Enviromark, Greening Australia

www.greeningaustralia.org.au

Monitoring remnant bushland, Greening Australia 2002

Tasmanian coastal works manual: Chapter 7, Page & Thorp 2010

Disclaimer

Any representation, statement, opinion or advice, expressed or implied in this publication is made in good faith, but on the basis that the Department of Primary Industries, Parks, Water and Environment its agents and employees are not liable (whether by reason of negligence, lack of care, or otherwise) to any person or for any damage or loss whatsoever which has occurred or may occur in relation to that person taking or not taking (as the case may be) action in respect of any representation or advice referred to herein.