

Coastal planting guide

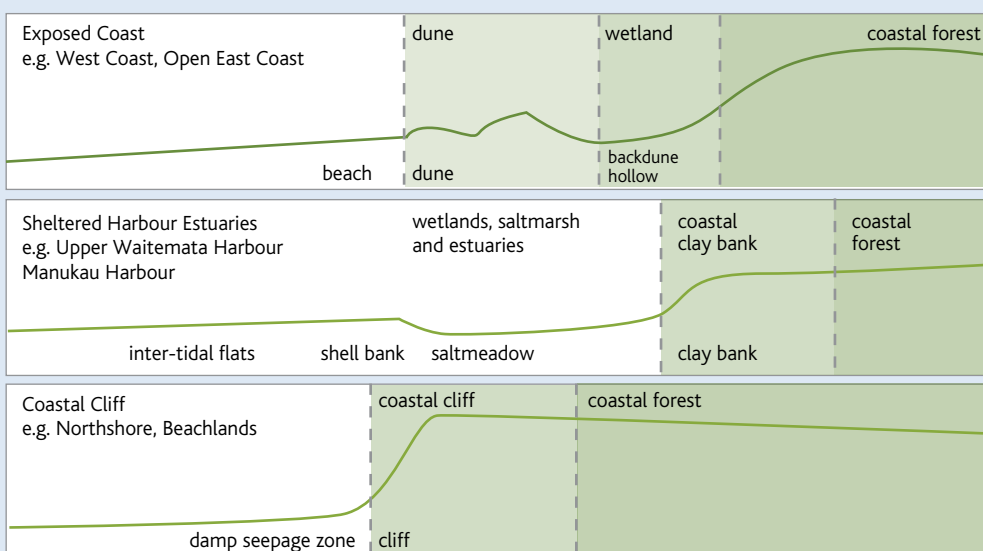
We can all be part of protecting, restoring and connecting Auckland's biodiversity.

The coasts of New Zealand were formerly clothed in native vegetation. The plant communities would have graded from highly salt tolerant species typical of estuaries, dunes and rocky cliffs to hardy ferns, herbs, shrubs and trees, typical of coastal broadleaf forests.

The land margin bordering the sea represents a unique and sensitive environment and the vegetation in this zone has several important functions. Good vegetation cover can help to protect coastal soil and sand from being eroded by wind and water. The natural character of the coastal environment can be preserved through the protection and restoration of native plant communities found in these zones. Stands of native vegetation between the beach and adjacent human development provides an important buffer, screening buildings and providing habitat for native birds and animals.

This factsheet is the first in a series of coastal planting guidelines, which have been produced to address the many reasons for planting in coastal locations, and to provide guidance as to what species are appropriate in different coastal zones. This information provides a coastal supplement to the Auckland Council Riparian Zone Management Strategy, Guideline and Planting Guide which focuses on freshwater and inland environments.

Protect. Restore. Connect.



The above diagrams illustrate the location of these environments within the coastal landscape.



Spinifex seed head



Pohutukawa flower

Go native!

Naturally occurring coastal plants have adapted to the harsh coastal environment by developing strategies such as fleshy leaves to conserve moisture, tough leathery leaves to withstand salty wind and by having a growth form which keeps foliage and flowers out of the wind.

Why plant?

- To improve biodiversity by restoring threatened ecosystem types and habitats, which will increase the diversity of native coastal plant and animal species and enhance remnant vegetation. Many native birds, reptiles and invertebrates live in the coastal zone or use them as a travel corridor. Larger areas of vegetation support more species and enhance the long term viability of ecosystems.
- To help reduce erosion and improve soil stability by dewatering soil and increasing soil binding root mass. Vegetation buffers are less expensive than engineered erosion management options. Some native plants are better designed to stabilise foredunes, and other native coastal species are more appropriate in backdune areas, coastal forests, banks and cliffs.
- To improve scenic values and to enhance or restore natural character of the coastline through the use of native plants found naturally in these zones.
- To shade out weeds.
- To define public access-ways for pedestrians from the land down to the beach, and to prevent people reaching cliff edges.
- To enhance desirable views and to create native gardens in coastal zones. It is important to take into account the size mature plants will grow to if you seek to preserve coastal views from properties.
- To provide shade and shelter.

Coastal gardening

Many of us live on or near the coast, and gardens are commonly established in coastal areas with harsh environmental conditions, where plants must cope with salt-laden winds and drought. Our gardens can have a huge impact on natural ecosystems and plants and garden layouts should harmonise with the coastal environment. Landscaping with lawns increases the potential for storm damage and erosion. Historical use of exotic species in coastal gardens (such as coastal banksia, agapanthus, pampas and boneseed) has led to these exotic species becoming established in the coastal environment, where they can spread quickly and smother native plants.

The sea has a moderating effect on climate and many species, which are frost tender, may be able to be grown in a coastal garden, if sheltered from the wind. There are many native coastal species that are appropriate for coastal gardens.

Did you know?

Native coastal vegetation and dunes are some of New Zealand's most threatened ecosystems. The coastal forests, beaches and dune systems of northern New Zealand and the Auckland region are part of our unique national identity and biodiversity. Coastal forests have been reduced by over 90 per cent from their original extent. Less than 10 per cent of New Zealand's sand dunes are unmodified.



Pingao, New Zealand coastal plant

Eco-sourcing

It is important where practicable, to use plants that have been obtained from local sources (e.g. eco-sourced). These plants are better adapted to the local climate than plants of the same species obtained from an inland source or a coastline that is exposed to different climatic conditions. For example, plants of the same species, such as pīngao, that are suited to growing on the relatively sheltered east coast, may not be able to withstand the harsh conditions of Auckland's west coast.

You may be able to grow some of your plants from seeds taken from existing plants on the adjacent coastline – always seek permission before taking any plant material. Buy plants from nurseries that source plants from your district to ensure they are suited to your area's climate and soils. Avoid using unnatural cultivars of native plants such as variegated flax and pōhutukawa, which are not well adapted to the coastal environment, and may weaken local populations.

Planning before you start ...

Carefully check the proposed planting site for signs of early human occupation (e.g. midden, pa defences). Permission is required from the New Zealand Historic Places Trust before disturbing any archaeological sites, e.g. planting into midden. Contact the Auckland Council and talk to one of the archaeologists if more information is needed.

Prepare the site before planting. When planning an ecological restoration project one of the initial steps is to control invasive weeds (e.g. pampas, gorse) and introduced predators and browsers (e.g. possums, mustelids, ferrets, deer, pigs and goats).

It may be appropriate to retain some weed species in the short term if they are helping to control erosion or if they will shelter, but not smother, young native plants. For more information on how to identify and control pest plants and animals contact the Auckland Council biosecurity team on 09 301 0101 or check out the information available on the council website www.aucklandcouncil.govt.nz

Ensure that your coastal planting and existing natural areas are adequately fenced to protect them from stock and people. Avoid over-grazing, stock treading or wallowing which will destabilise vegetation and may erode farm land. Encourage natural regeneration by keeping stock out of natural areas such as estuaries and dunelands.

Time planting to occur in the '**planting season**' from March to June to avoid drought. This encourages the root system to become well established before the soil dries out the following summer.

Select a mixture of canopy and shrub layer plants with higher numbers of colonizing species to establish shelter. Introduce other species later to enhance the overall plant diversity.

To aid the survival of plants in the coastal zone, use reasonably large **size** potted stock in either PB3 or PB5 planter bags, or budget for replacement planting.



Soak the plant thoroughly before planting. Plant with the root ball just below the soil surface (with the exception of foredune plants) and ensure plants are well **watered** at the time of planting and as required thereafter.

To stop the spread of invasive pests **please check all mulch, plants, their soil and containers** (before you move them to your planting site) for contaminants, eggs and live animals e.g. Rainbow skinks and Argentine ants. Please avoid using contaminated mulch, soil and plant material in your restoration planting.

Spacing of plants will differ depending on their growth form. For example, sand binding species and sedges need to be planted 0.5m apart to encourage vegetation cover, while trees and shrubs will only need to be planted at 1.0-1.5m centres. Larger trees such as pōhutukawa need to be planted more than 5m apart. Set plants out in groups and plant closely to each other to provide sheltered environments. Some species are more suited to being planted in open areas to establish nurse crops for other native species.

If your budget allows, incorporate a 12 month slow release **fertiliser**, (such as 'grow tabs') into the hole when planting to give plants a boost.

Consider erecting some form of temporary **shelter** to reduce plant damage from salt-laden wind. Temporary shelters made from shade cloth are useful but expensive, and will require ongoing maintenance. Take advantage of shelter provided by existing plants.



Ongoing management

Planting requires an ongoing commitment to weed management until the plants have successfully established. Remove weeds from around plants for 2-3 years following planting or until the native plants are at a height where they over-top the weeds and will eventually crowd them out. In some environments ongoing weed control will be required.

Ongoing animal pest management may be required as coastal conditions often provide an ideal habitat for rabbits and possums, which can cause considerable damage to new plantings by browsing and also by burrowing in unstable areas. Possums can be a major pest in the coastal environment, damaging palatable species such as pohutukawa.

Coastal vegetation will not provide structural stability to an eroding coastline, however it will help manage erosion by providing some surface stability through vegetation cover and soil binding roots. It may be necessary to maintain your coastal planting by replanting areas that have been damaged by slips and harsh coastal conditions.

To limit the adverse effects of pedestrians to and along the coast, ensure that appropriate accessways are provided and are clearly identified. It may be necessary to erect some temporary fencing until plants are well established.

Need more help?

The Auckland Council's biodiversity team can provide further information on ecological restoration, please contact biodiversity@aucklandcouncil.govt.nz or 09 301 0101. Many of the native plants listed in the coastal planting guidelines are on display at the Auckland Botanic Gardens in Manurewa. Please feel free to visit the gardens to familiarise yourself with these plants. For further information on coastal planting, pest control, funding opportunities, coastal management and ecological restoration please contact Auckland Council on 09 301 0101 or check out our website www.aucklandcouncil.govt.nz

These factsheets provide detailed planting guides for specific coastal areas:

- 02 Dunes
- 03 Coastal forests
- 04 Coastal cliff tops
- 05 Coastal wetlands, saltmarshes and estuaries
- 06 Coastal clay banks

References

Auckland Council Riparian Zone Management Guidelines, TP148.

Auckland Council Factsheet – Good Start Planting Guide.

Crowe, A. (1995). Which coastal plant? Viking Publishers.