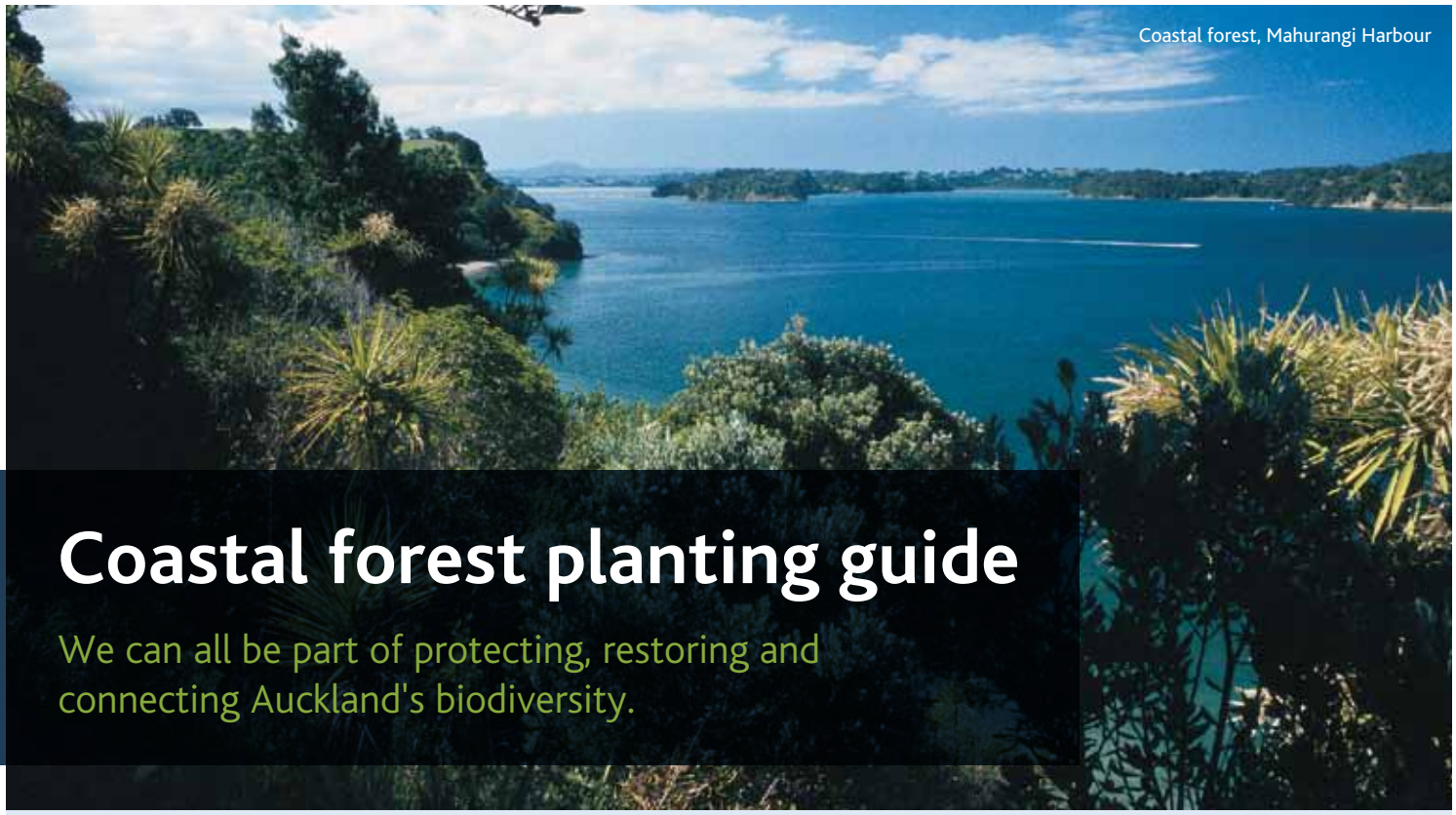


Coastal forest, Mahurangi Harbour

Coastal forest planting guide

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

Coastal forest

This factsheet provides information on replanting coastal forest areas. Replanting coastal forests can range from restoring existing degraded remnants, or re-establishing plant cover on bare sites. Replanting these areas with appropriate species increases biodiversity, provides habitat for wildlife, assists with erosion protection and enhances the natural character and scenic values of the coast.

Coastal forest has a character all of its own and in the Auckland region naturally includes a rich mix of species including pōhutukawa, pūriri, karaka, kohekohe, kawakawa, taraire, tawāpou, kōwhai, houpara, karo and other plants adapted to living in the coastal environment. The trees and other plants that make up coastal forests are able to withstand strong winds, salt spray and storms. Their leaves often have a furry or a waxy coating to protect them from salt damage and water loss.

In the Auckland region coastal forest often occupies steep, erosion-prone sandstone slopes and cliffs above the shore. Examples of remaining coastal forest can be seen on the shores of the Manukau Harbour – such as at Wattle and Wesley Bays and parts of the North Shore. Other fine examples of coastal forest remnants can be seen on the east coast at Long Bay, Wenderholm and Tawharanui Regional Parks and on the Hauraki Gulf Islands. Lone, sprawling and twisting pōhutukawa trees are sometimes all that remains of a once more diverse coastal forest. On the west coast there are extensive stands of coastal forest between Whatipu and Muriwai and here, the coastal vegetation is more wind sculpted than in the east. Coastal forests are found in the more sheltered gullies and ravines rather than on the wind exposed cliffs where kānuka, mānuka and flax are pressed close against the cliffs and behind them, wind-shorn pōhutukawa grow.

Did you know?

The coastal forest of northern New Zealand is unique and contains species that do not occur further south (e.g. pōhutukawa, taraire, tawāpou, tawaroa, pūriri) or in the rest of the world!

Protect. Restore. Connect.

Auckland Council
Te Kaunihera o Tāmaki Makaurau

To establish new coastal forest:

Initial plantings (stage 1 planting)

Initial plantings need to establish coloniser vegetation. Coloniser species are those plants able to cope with drier, hotter conditions in open areas and make up the bulk of a planting. Coloniser plants will provide shelter for other species to establish naturally. Consider planting a mixture of wind and bird dispersed species to help assist natural regeneration processes.

Enrichment plantings (stage 2 planting)

A successful restoration planting should create conditions where native plants can regenerate themselves, so that eventually the planting can become self-sustaining. Sometimes enrichment planting will be required to assist with providing a natural species composition within the planting, such as when natural dispersers are absent e.g. birds, or the planting is isolated from natural seed sources. Planting should be completed in stages. Once initial colonisers (stage 1) have become established (several years) and have begun to provide shade and shelter, stage 2 planting of enrichment species can be 'interplanted' between the original plants.

Planting list

A selection of New Zealand native plant species, which are successful in coastal forest areas, are listed in the following table.

Where practicable plants/seeds should be obtained from local sources (e.g. eco-sourced) and will therefore be able to cope with local environmental conditions. Plant in autumn for best results, so that the plants can establish well before the dry summer months.

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 soil and plant material in your restoration planting.

Species abundance

The species abundance (+) in the table indicates the approximate proportion that should be used within the planting. By following these recommendations the planting will replicate natural species abundance and groupings.

Planning your coastal planting

See Coastal planting guide 1 for detailed information on planning your coastal planting, site preparation and eco-sourcing plants.

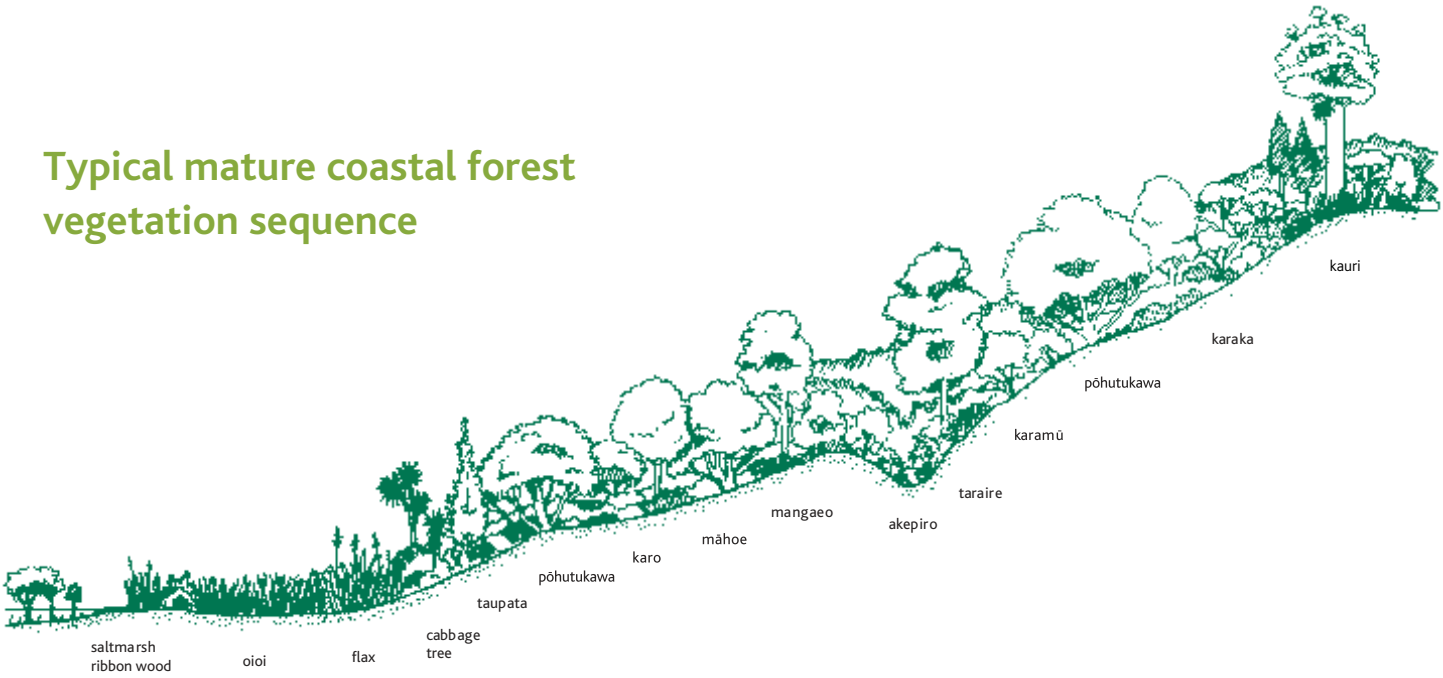
Spacing of plants will differ depending on their growth form. For example, sand-binding species and sedges need to be planted 0.5m apart to encourage vegetation cover, while trees and shrubs will only need to be planted at 1.0 – 1.5m centres. Larger trees such as pohutukawa need to be planted more than 5m apart. Set plants out in groups and plant closely to each other to provide sheltered environments.

Whau head seeds

Maori name/ common name	Botanical name	Lifeform	Height	Abundance		Comment
				(+++ use plentifully, ++ use commonly, + use sparingly)		
				Initial plantings stage 1	Enrichment plantings stage 2	
karamū	*Coprosma robusta or C. macrocarpa*	shrub or small tree	5m	+++		Hardy shrub with abundant orange berries in late summer-autumn. Moderate salt tolerance. Attracts birds.
mānuka	*Leptospermum scoparium*	small tree	8m	+++		Grows vigorously and tolerates most conditions. Important coloniser species. Forms well developed root system that stabilises banks. White flowers. Avoid disturbing roots when planting.
māhoe	*Melicytus ramiflorus*	tree	10m	+++		Fast growing tree. Good for damp shady sites. Very hardy.
kānuka	*Kunzea ericoides*	tree	16m	+++		Good colonising species. White flowers (spring-summer).
taupata	*Coprosma repens*	shrub or small tree	2-4m	++		Large shrub or small tree with dark green, glossy, rounded leaves. Very hardy, excellent wind and seaspray shelter. Orange berries attract birds.
māpou	*Myrsine australis*	tree	7m	++		Slender tree with red stems. Hardy. Attracts birds.
tī kōuka/ cabbage tree	*Cordyline australis*	tree	17m	++		Erect tree with crown of narrow leaves tufted at the end of branches, white flowers in spring. Requires some protection when young. Moderate tolerance to salt and wind. Plant back from the estuarine edge and in damp dune hollows. Fruit attracts birds.

Maori name/ common name	Botanical name	Lifeform	Height	Abundance		Comment
				(+++ use plentifully, ++ use commonly, + use sparingly)		
				Initial plantings stage 1	Enrichment plantings stage 2	
kōwharawhara/ coastal astelia	*Astelia banksii*	herb	1-2m	+	+	Plant on dry slopes, Long drooping silver-green leaves. Often found growing on pohutukawa.
koromiko	*Hebe stricta or H. macrocarpa*	shrub	4m	+	+	Coloniser. Long, white flower spikes in spring.
hangehange	*Geniostoma ligustrifolium var. ligustrifolium*	shrub or small tree	4m	+	+	Lowland shrub with light green foliage. Needs protection from wind when young. Useful understorey species.
houpara/ coastal five finger	*Pseudopanax lessonii*	small tree	7m	+	+	Good colonising tree in coastal areas. Glossy leathery leaves. Responds well to pruning. Very hardy.
nīkau	*Rhopalostylis sapida*	palm	10m	+	+	Slow growing. Red berries provide food for kereru/ native pigeon.
kōwhai	*Sophora chathamica*	tree	20m	+	+	Primarily a species of coastal forest, often on cliff faces or banks overlooking estuarine rivers or inlets. Common around Auckland. *Sophora fulvida* should be planted on Waitakere west coast only.
pōhutukawa	*Metrosideros excelsa*	Large tree	25m	+	+	Tolerates tough conditions but vulnerable to possums. Crimson flowers at Christmas attract birds.
ngaio	*Myoporum laetum*	tree	8m	+		Very wind hardy. Fleshy gland dotted leaves. Good shelter tree. Frost tender.
whau	*Entelea arborescens*	small tree	6m	+		Relatively short-lived. Fast growing tree with large leaves. Attractive white flowers attract birds.
karo	*Pittosporum crassifolium*	small tree	10m	+		Common vigorous coastal shrub or tree with grey-green foliage and dark red flowers that are scented at night. Tolerates strong wind, salt and poor soil. Flowers attract birds.
korokio	*Corokia cotoneaster*	shrub	3m		+	Interlacing shrub with dark bark. Can be used for hedging.
pōhuehue/ wire vine	*Muehlenbeckia complexa*	vine	1m		+	Hardy, ideal for banks and other difficult sites. Also grows well on a trellis, forming a dense hedge. Vigorous shrubby ground cover. Dense tangled mass along rocky coast and dunes. Plant in zone immediately landward of sand binders. Important food source for invertebrates. Provides excellent cover for lizards.
Mākaka/ NZ broom	*Carmichaelia australis*	Small tree	2-5m		+	Small bush with lavender flowers.
kawakawa	*Macropiper excelsum subsp. excelsum*	small tree	7m		+	Large heart shaped leaves, usually holed by chewing native moth. Orange fruits in summer attract birds. Self-seeds easily. May need some shelter to establish.
akepiro	*Olearia furfuracea*	small tree	7m		+	Exposure tolerant. Daisy like flowers in summer.
rangiora	*Brachyglottis repanda*	small tree	7m		+	Striking large leaves with grey undersides. Creamy flowers in spring.
wharangi	*Melicope ternata*	small tree	8m		+	Frost tender when young. Attractive shiny green foliage.
karaka	*Corynocarpus laevigatus*	tree	18m		+	Hardy, leafy canopy tree. Produces large numbers of bright yellowish orange fruit in summer.
mangeao	*Litsea calicaris*	tree	15m		+	May be hard to establish but grows into an attractive tree.
porokaiwhiri/ pigeonwood	*Hedycarya arborea*	tree	15m		+	Attractive glossy, green leaves, bright orange fruits and black wood. Attracts birds.
tawāpou	*Planchonella costata*	tree	15m		+	Hardy but frost tender. Large orange to dark crimson berries in autumn.
kohekohe	*Dysoxylum spectabile*	large tree	17m		+	Prefers shady sites, frost tender. Vulnerable to possums. Flowers and fruit attracts birds.
pūriri	*Vitex lucens*	large tree	20m		+	Pink flowers and berries. Prefers fertile sites. Seeds distributed by kererū/native pigeon.
taraire	*Beilschmiedia tarairi*	large tree	20m		+	Frost tender. Large rounded glossy leaves. Big purple fruit eaten by kererū/native pigeon.
rewarewa/ NZ honeysuckle	*Knightia excelsa*	tree	30m		+	Slender tapering tree with long narrow serrated leaves. Rusty red flowers in spring and summer attract tūī.

Typical mature coastal forest vegetation sequence



For sites with remnant coastal forest consider:

- fencing off from stock
- controlling weeds and pests
- interplanting with diversity species e.g. pōhutukawa, taraire, pūriri (see table).

Arno Gasteiger – Ancient pūriri in coastal forest

Need more information?

The Auckland Council's biodiversity team can provide further information on ecological restoration, 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 visit our website www.aucklandcouncil.govt.nz

Other factsheets in this series:

01 Coastal planting guide

02 Dunes

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.

Cranwell, L.M. (1981). The Botany of Auckland. Auckland War Memorial Museum

Crowe, A. (1995). Which Coastal Plant? Viking Publishers.

Morton, J. (1993). A Natural History of Auckland. Bateman in association with ARC.

BC2224