

Coastal cliff tops planting guide

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

Coastal cliff tops

Auckland's coastal cliffs differ from one location to the next, in terms of the substrate present, the types of plants that grow there, and the degree of exposure to salt spray and salt laden winds. Along the western coastlines of Awhitu and Kaipara, consolidated sand forms steep cliffs susceptible to erosion. The often rocky shoreline of Waitakere supports native coastal plants found nowhere else.

The sandstone cliffs along Auckland's eastern coastline are enjoying a resurgence of pōhutukawa as possums are controlled and people take an active role in caring for this iconic species.

These guidelines are for those wishing to plant coastal cliff tops. The cliff face itself presents a difficult and dangerous planting site. While some success may be gained from broadcasting seed directly on to cliff faces, such sites are probably best left to professionals!

Coastal cliff tops are difficult to plant because the soils are often thin and drought prone. It is important to consider the weight of trees and future loading of the slope because coastal cliffs weather very easily and are often structurally weak. Coastal cliffs, especially the soft Waitemata sandstones, are particularly vulnerable to erosion.

Plant roots are important soil binders on coastal cliffs. Different root structures can work together to help stabilise cliffs. Herbaceous and shrubby plants have shallower root systems while larger trees usually have spreading and deeper roots. These plants can work together to help slow erosion.

Protect. Restore. Connect.

Planting list

A selection of New Zealand native plant species, which are suitable for planting on coastal cliff tops, 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.

Initial plantings (stage 1 planting)

Bare coastal cliff tops devoid of existing vegetation should be planted first of all with colonising species (Initial plantings or stage 1) that are capable of surviving high light levels and exposure to salty coastal winds.

Enrichment plantings (stage 2 planting)

Other species in this list are more suitable for enrichment planting (stage 2) interplanting in existing vegetation, or after the initial colonisers have become established and have begun to provide some shade and shelter.

See comments notes for smaller species suitable for planting up to the cliff edge. Other species should be planted further back from the edge where their weight is less likely to contribute to erosion.

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 ecosourcing plants.

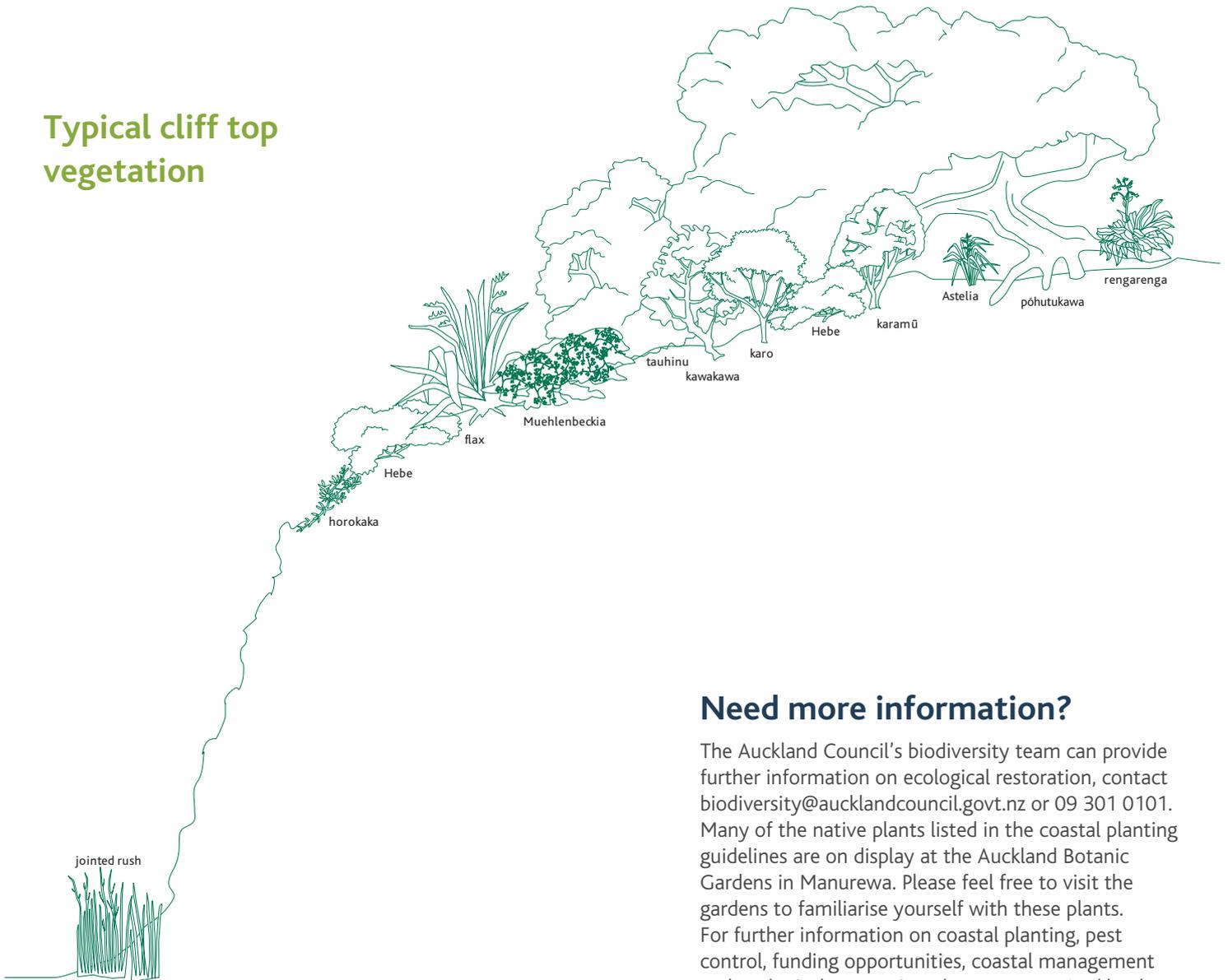
Spacing of plants will differ depending on their growth form. For example, sand binding species and sedges need to be planted 0.5m apart to encourage vegetation cover, while trees and shrubs will only need to be planted at 1.0 – 1.5m centres. Larger trees such as pohutukawa need to be planted more than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



Maori name/ common name	Botanical name	Lifeform	Height	Abundance		Comment
				(+++ use plentifully, ++ use commonly, + use sparingly)		
				Initial plantings stage 1	Enrichment plantings stage 2	
pōhuehue/ wire vine	<i>Muehlenbeckia complexa</i>	vine	1m	++		Hardy, ideal for banks and other difficult sites. 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.
kōwharawhara/ coastal astelia	<i>Astelia banksii</i>	herb	1-2m	++	++	Grows on rocks, banks and as epiphyte on coastal pohutukawa. Long drooping silvery-green leaves. Greenish flowers followed by purple fruit. Suitable for planting up to the cliff edge.
wharariki/mountain flax	<i>Phormium cookianum</i>	Clump former	1.5m	++		Very hardy, tolerant of salt exposure. Grows in a range of conditions. Drooping leaves and seedheads. Attracts birds. Suitable for planting up to the cliff edge.
harakeke/flax	<i>Phormium tenax</i>	Clump former	2-3m	++		Very hardy, tolerant of salt exposure. Grows in a range of conditions. Excellent shelter, erect leaves. Upright in habit with tall red flower heads. Suitable for planting up to the cliff edge.
toetoe	<i>Austoderia splendens</i>	large grass	3m	++		Tolerates drought and salt wind. Can grow on dry disturbed sites. Tall dense creamy-gold flowering plumes. Not to be confused with the invasive pampas grass from South America.
taupata	<i>Coprosma repens</i>	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.
koromiko	<i>Hebe stricta</i> or <i>H. macrocarpa</i>	shrub	4m	++		Coloniser. Long, white flower spikes in spring. Suitable for planting up to the cliff edge.
karamū	<i>Coprosma robusta</i> or <i>C. macrocarpa</i>	shrub or small tree	5m	++		Hardy shrub with abundant orange berries in late summer-autumn. Moderate salt tolerance. Attracts birds. Suitable for planting up to the cliff edge.

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houpara/coastal five finger	<i>Pseudopanax lessonii</i>	small tree	7m	++		Good colonising plant. Grows to a large tree. Glossy leathery leaves. Responds well to pruning. Very hardy. Suitable for planting up to the cliff edge.
māpou	<i>Myrsine australis</i>	tree	7m	++		Slender tree with red stems. Hardy. Attracts birds.
mānuka	<i>Leptospermum scoparium</i>	small tree	8m	++		Important colonizing species. Grows vigorously and has a wide ecological tolerance. Important colonizer species. Forms well developed root system that stabilises banks. White flowers. Avoid disturbing roots when planting. Suitable for planting up to the cliff edge Suitable for planting up to the cliff edge.
māhoe	<i>Melicytus ramiflorus</i>	tree	10m	++		Fast growing tree. Good for damp shady sites. Very hardy.
kānuka	<i>Kunzea ericoides</i>	tree	16m	++		Good colonising species. White flowers (spring-summer).
tī kōuka/cabbage tree	<i>Cordyline australis</i>	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. Fruit attracts birds.
rengarenga/rock lily	<i>Arthropodium cirratum</i>	shrub	0.5m	+		Tolerates light or shade. Prefers dry frost-free sites. Shiny green foliage, white flowers in late spring. Suitable for planting up to the cliff edge.
cliff hebe	<i>Hebe obtusata</i>	Small shrub	0.3m	+		Plant in Waitakere only. Frost tender. Mauve flower(summer-winter).Suitable for planting up to the cliff edge.
oioi/jointedwire rush	<i>Apodasmia similis</i>	rush	1m	+		Base of cliffs, in seepage areas. Bordering salt marshes and estuaries.
tauhinu/cottonwood	<i>Ozothamnus leptophyllus</i>	shrub	5m	+		Very hardy, tolerates wind. Grey/green foliage. Grows in exposed sites and on dry banks along the West Coast.
whau	<i>Entelea arborescens</i>	small tree	6m	+		Relatively short-lived, fast growing tree with large leaves. Attractive white flowers. May need some shelter to establish.
ngaio	<i>Myoporum laetum</i>	tree	8m	+		Very wind hardy, grows well in sandy soil. Fleshy gland dotted leaves. Good shelter tree. Frost tender. Suitable for planting up to the cliff edge.
karo	<i>Pittosporum crassifolium</i>	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. Suitable for planting up to the cliff edge.
pōhutukawa	<i>Metrosideros excelsa</i>	large tree	25m	+	+	Tolerates tough conditions but requires protection from browsing when young. Crimson flowers at Christmas. Attracts birds. Will establish naturally in difficult areas through wind blown seed.
horokaka/NZ iceplant	<i>Disphyma australe</i>	ground-cover	0.1m		+	Fleshy-leaved ground cover with white-mauve flowers (summer). Can grow on coastal rocks and at the base of a clay bank.
hangehange	<i>Geniostoma ligustrifolium</i> var. <i>ligustrifolium</i>	shrub or small tree	4m		+	Lowland shrub with light green foliage. Needs protection from wind when young. Useful understorey species. Suitable for planting up to the cliff edge.
akepiro	<i>Olearia furfuracea</i>	small tree	7m		+	Exposure tolerant. Daisy like flowers in summer. Suitable for planting up to the cliff edge
rangiora	<i>Brachyglottis repanda</i>	small tree	7m		+	Striking large leaves with grey undersides. Creamy flowers in spring. Suitable for planting up to the cliff edge
kawakawa	<i>Macropiper excelsum</i>	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. Suitable for planting up to the cliff edge.
puka	<i>Griselinia lucida</i>	tree	8m		+	Large glossy-green leaf. Very attractive.
wharangi	<i>Melicope ternata</i>	small tree	8m		+	Frost tender when young. Attractive shiny green foliage.
mākaka/ NZ broom	<i>Carmichaelia australis</i>	small tree	10m		+	Small bush with lavender flowers.
porokaiwhiri/pigeonwood	<i>Hedycarya arborea</i>	tree	15m		+	Attractive glossy, green leaves, bright orange fruits and black wood. Attracts birds.
kohekohe	<i>Dysoxylum spectabile</i>	large tree	17m		+	Needs shelter and is frost tender. Flowers and fruit attracts birds.
kōwhai	<i>Sophora chathamica</i>	tree	20m		+	Primarily a species of coastal forest, often on cliff faces or banks overlooking estuarine rivers or inlets. Common around Auckland. <i>Sophora fulvida</i> should be planted on Waitakere west coast only.
puriri	<i>Vitex lucens</i>	large tree	20m		+	Pink flowers and berries. Prefers fertile sites. Seeds distributed by kererū/native pigeon.

Typical cliff top vegetation



Management of large trees on cliff tops

Pōhutukawa trees can cause concern as they precariously cling to cliff faces. However, these trees are designed to cope with such conditions and can resprout using aerial roots if they slip.

It is often beneficial to retain large trees on cliff tops, whether native or exotic, as they provide crucial shade and shelter for young plants and help to prevent erosion. An existing canopy of large trees creates conditions suitable for under-planting of secondary (e.g. enrichment planting) species. Once new plants are strong enough to cope with the local conditions, it may be worth pruning or removing exotic trees.

Be sure to consult Auckland Council and check the tree rules before pruning or removing large trees. Such work may require resource consent to be gained before undertaking such activities.

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
- 03 Coastal forests
- 05 Coastal wetlands, saltmarshes and estuaries
- 06 Coastal clay banks

References

Auckland Council factsheet – Good Start Planting Guide.

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