

WHAT TO PLANT IN

Coromandel Ecological Region

Colville, Tairua,
Thames and Waihi
Ecological Districts

Waikato



REGIONAL COUNCIL
Te Kaunihera ā Rohe o Waikato

**PLANTING LOCAL NATIVE TREES TO PRESERVE OUR NATURAL
HERITAGE AND PROMOTE OUR COMMUNITY IDENTITY.**

CONTENTS

NGĀ ŪPOKO

ABOUT THIS GUIDE	3
COROMANDEL ECOLOGICAL REGION AND DISTRICTS	5
WHAT IS SPECIAL ABOUT THESE ECOLOGICAL DISTRICTS?	8
SPECIAL PLANTS.....	11
PLANTING GUIDE.....	13
SPECIAL PLANTING SITUATIONS	17
Remnant tree stands	17
Stream banks and riparian zones	17
Stabilising slips, road cuttings and erosion-prone areas.....	18
Coromandel planting zones.....	19
PLANT LIST FOR COLVILLE, TAIRUA, THAMES AND WAIHI ECOLOGICAL DISTRICTS	30





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Species names often change after taxonomic revision. The updated plant species names in this publication are taken from the New Zealand Plant Conservation Network website, www.nzpcn.org.nz.

ABOUT THIS GUIDE

NGĀ KŌRERO MŌ TE PUKA

THE COROMANDEL PENINSULA IS A SPECIAL PLACE THAT DRAWS THOUSANDS OF SUMMER VISITORS TO ENJOY ITS SANDY BEACHES, DRAMATIC LANDSCAPE, EXTENSIVE FORESTS AND DIVERSITY OF WILDLIFE. THE COROMANDEL IS ONE OF THE MOST EXTENSIVELY VEGETATED PARTS OF THE WAIKATO REGION. ABOUT 60 PER CENT OF THE PENINSULA IS CLOTHED IN NATIVE VEGETATION, MUCH OF IT RECOVERING FROM MORE THAN A CENTURY OF LOGGING, MINING AND FARMING

ACTIVITIES.

WITH SO MUCH VEGETATION REMAINING ON THE PENINSULA, WHY THE NEED FOR A PLANTING GUIDE?

- Most of the remaining native forest is in large protected reserves in the higher altitude sub-montane and montane zones. The coastal and lowland zones, which support a different range of plants and animals, have experienced significant loss of vegetation and many of the remaining stands of bush are degraded by grazing, with little or no understorey.
- The peninsula is plagued by a wide range of weeds that take advantage of the warm, wet climate and are a threat to both agriculture and native biodiversity.
- Frequent rainstorms cause severe stream bank erosion, land slides and flooding which pollute waterways and threaten lives and property.

Planting natives on the peninsula can help overcome these problems. Native plants can be used to:

- return native vegetation to the coastal and lowland zones, enhance waterways and provide seasonal food for native birds
- restore degraded stands of remnant trees, such as the isolated stands of pūriri and pukatea with no undergrowth
- replace exotic weeds and prevent other weeds establishing in cleared areas
- stabilise river banks and reduce erosion on bare land and newly created slips.

Many agencies, community groups, and individuals are working hard to protect the natural values of the Coromandel Peninsula. They are removing weeds, controlling pests, reintroducing locally

extinct wildlife and planting natives to recreate or enhance natural ecosystems. This guide will help you select and plant local native plants for your gardens and revegetation areas, or as specimen or shelter trees for your property.

The focus of this planting guide is on forest species. For ideas on what to plant in wetlands, contact Waikato Regional Council for a copy of the wetland management series of factsheets or see waikatoregion.govt.nz (type 'freshwater wetlands' in the search box).



Frequent rainstorms cause stream bank erosion.



This guide is for the Coromandel Peninsula, including the northern side of Waihi Beach, crossing west including the Karangahake Gorge almost to Paeroa, and following the eastern bank of the Waihou River north to Thames. It includes coastal, lowland and hill country environments.

The Kauaeranga River estuary and wetland are outside these ecological districts.



Coromandel ecological region and districts

COROMANDEL ECOLOGICAL REGION AND DISTRICTS

ROHE ME NGĀ TAKIWĀ HAUROI O KARAMAINA

WHAT IS AN ECOLOGICAL DISTRICT?

New Zealand has been divided into 268 different ecological districts based on geological, topographical, climatic and biological features that together define a characteristic landscape. Similar districts combine to form an ecological region.

DESCRIPTION OF COROMANDEL ECOLOGICAL REGION AND DISTRICTS

The Coromandel ecological region is a peninsula, bounded by sea to the north, west and the east. It also includes a number of offshore islands.

The Coromandel Range was formed by prehistoric tectonic uplifting and volcanic activity. The geology is predominantly andesite to rhyolite, forming the characteristic peaks of the Pinnacles and Castle Rock, overlying basement sedimentary rocks (greywacke and argillites). Intense rainfall and stream development eroded the surface, creating the dissected steeplands. The eroded sediments were carried downstream and deposited to form river flats.

The topography of the ecological region is varied, it includes:

- the northern end (Moehau Range) – long ridges and steep streams radiating out to the coast, steep and broken hillslopes, floodplains, harbours and estuaries
- the western side (Colville to Thames) – abrupt, steep drop to the coastline with well defined, deep valleys draining toward the west coast, broad ridges and a high plateau-like main range
- the eastern side (Waikawau Bay to Waihi) – rolling hill country with broad river valleys draining to the sea via estuaries and harbours
- the southern end (Ohinemuri Plain to east of Karangahake Gorge) – large vegetated river catchments, small sandy beaches and coastal hills dropping steeply to sea cliffs.

Soils vary with the topography. Thin soils over weathered rock are common on steep land areas. Deeper soils, sometimes formed from remnant volcanic ashes, dominate the more gentle rolling hills, and a mix of well-drained, imperfect and poorly drained fertile alluvial soils are found in the valleys.

The climate, influenced by close proximity to the sea, is largely a moist oceanic climate, with mild winters and warm humid summers. Rainfall is spread fairly evenly throughout the year, though summer droughts and periods of localised torrential rain with associated flooding can occur. A high degree of variation in mean annual rainfall figures and temperature occurs between lowland and montane areas. The west coast is exposed to moist westerly winds, with a greater frequency of cloud, fog and mist cover.

The Coromandel ecological region is divided into eight ecological districts, four of which are the focus of this planting guide:

1. COLVILLE ECOLOGICAL DISTRICT

Covers the northernmost portion of the Coromandel Peninsula. The Moehau Range runs in a northwest to southeast direction along the length of the peninsula, reaching a height of 892m (Mt Moehau).

2. TAIRUA ECOLOGICAL DISTRICT

Extends down the lower eastern coastline of the peninsula, from Whitianga to Whangamatā and across the main range to Thames. The central Coromandel Range dissects the district from north to south with high peaks of the Pinnacles (759m) and Table Mountain (832m).

3. THAMES ECOLOGICAL DISTRICT

Extends down the lower western coastline of the peninsula and across towards Whitianga Harbour. This district includes a large amount of steep hill country and areas within the montane zone.

4. WAIHI ECOLOGICAL DISTRICT

Extends down the east coast south of Whangamatā to the north side of Waihi Beach and crosses west almost to Paeroa, including the Karangahake Gorge. The terrain in this district is gentler than the previous three districts, with only small areas of the main divide higher than 500m above sea level.

Each of these districts has a particular combination of landform, soil, vegetation and climate which brands them differently from each other and the rest of the country.

VEGETATION IN THE COLVILLE, TAIRUA, THAMES AND WAIHI ECOLOGICAL DISTRICTS

Originally these districts were covered in native vegetation, mainly forest of four types:

- coastal (pōhutukawa, kohekohe and pūriri) forest on the narrow coastal perimeter
- dense conifer (kahikatea, mataī and tōtara) forest on the flat, poorly drained river terraces
- mixed kauri-conifer-broadleaf forest and rimu-tawa forest throughout the hill country, with scattered pockets of taraire north of Tapu and Tairua
- montane conifer forest with patches of tōwai-tāwari-tāwheowheo scrub at the high altitudes.

These forests assisted in protecting and building the soil resource, playing a vital role in reducing erosion and the resultant effects of sedimentation and flooding. They helped to maintain a clean, healthy water resource and provide habitat for native animals including Archey's and Hochstetter's frogs, kiwi, Moehau stag beetle and tuatara.

The vegetation has significantly changed since European settlement, with little primary forest remaining. Much of the remaining vegetation has either been cut over or has re-established following fire or clearance for agriculture.

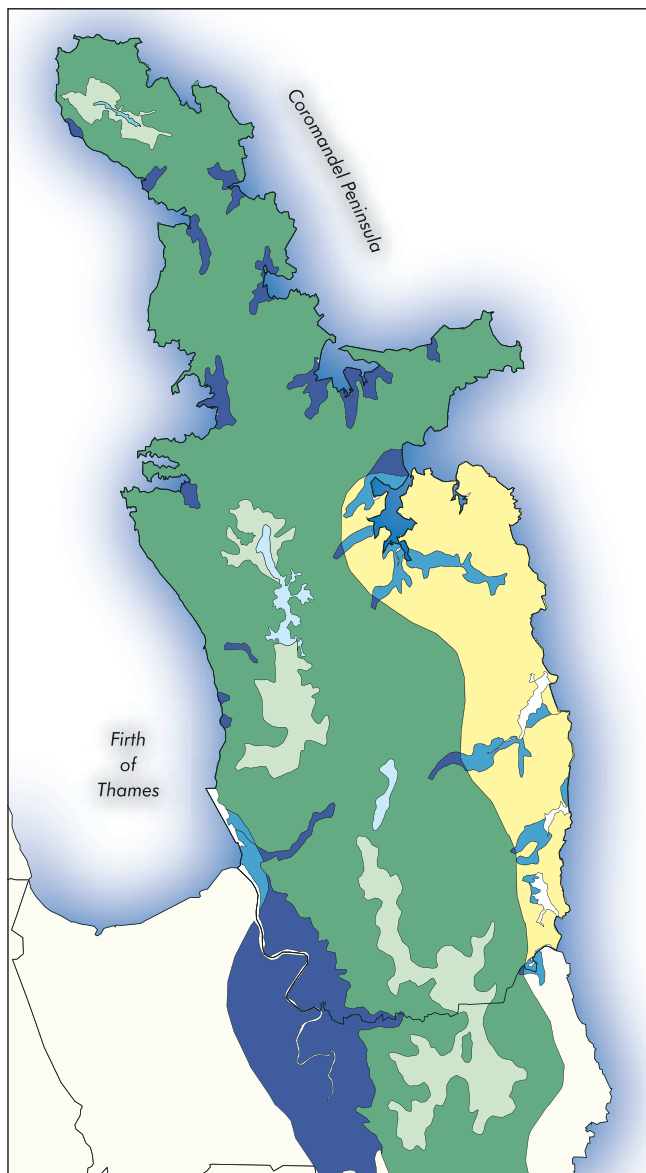


Coromandel Peninsula is the transition zone between many northern and southern indigenous plant species. As a result, a relatively high number of species (>700) are found here, with a number of communities unique to the area.

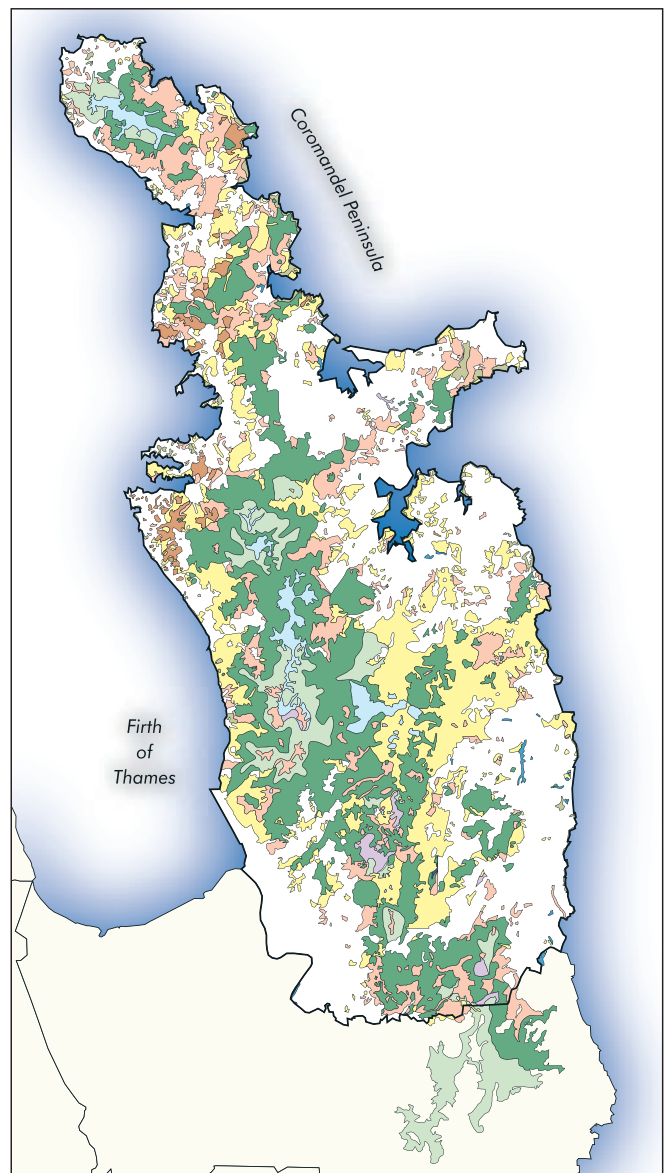
The summit of Mt Moehau (892m), for example, stands as the northern limit for many southern montane species such as mountain toatoa and pāhautea (New Zealand mountain cedar), which grow alongside northern species such as tōwai and tāwari. Coromandel Peninsula also has a diverse range of fauna present with many species distinctive to the Waikato region or no longer common elsewhere in New Zealand.

ECOLOGICAL DISTRICT	TOTAL AREA (HA)	REMAINING INDIGENOUS VEGETATION (%)	REMAINING PRIMARY FOREST (%)
Colville	77,201	59	8
Tairua	90,703	50	4
Thames	40,817	81	18
Waihi	47,290	3	15

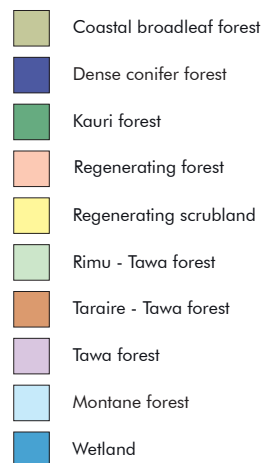
For more detail on the natural history of the Coromandel ecological region, see E. A. Humphrys and A.M. Tyler's *Coromandel Ecological Region: Survey Report for the Protected Natural Areas Programme*. Waikato Regional Council's library has a copy available for you to view, by appointment.



COROMANDEL VEGETATION COVER IN 1840



COROMANDEL VEGETATION COVER TODAY



WHAT IS SPECIAL ABOUT THESE ECOLOGICAL DISTRICTS?

HE AHA I MOTUHAKE AI ĒNEI TAKIWĀ HAUROPI

SPECIAL COMMUNITY PROJECTS

The Coromandel Peninsula is a beautiful place. It has white sands, rugged coastal cliffs hung with pōhutukawa, historical relics from the mining and logging days, remnant kauri forests, populations of kiwi and native frog species, and extensive walking tracks over bush-clad ranges.

These treasures are at risk. The Coromandel Peninsula is in close proximity to the main centres of Auckland and Hamilton, where one-third of New Zealand's population lives. It is the leisure and recreation destination of choice for many New Zealanders. There is very little original coastal forest remaining on the peninsula due to intensive development and pressure for access. Roding, drainage, rubbish dumps, marine farms, jetties, marinas, forestry, and farming are all placing greater pressure on the peninsula's natural resources

These threats have spurred the community to action. There are now more than 76 environmental community groups active on the peninsula involved in voluntary activities such as animal and plant pest control, fencing and planting, development of accessways and recovery of threatened species. Local beach, harbour, catchment and kiwi restoration groups all operate with a common theme of people working together to protect our environment.

Some community projects include:

KIWIS FOR KIWI

WWW.KIWISFORKIWI.ORG

There are a number of kiwi volunteer groups active on the peninsula, involving partnerships between landowners, residents, Department of Conservation and Waikato Regional Council. The focus is on promoting the welfare of kiwi and their habitat, to ensure the long-term survival of wild kiwi populations. Kiwi also act as an indicator species, providing an indication of the health of the entire ecosystem. Actions that benefit kiwi also help other species, both flora and fauna, within the ecosystem.

Kiwi groups are involved in:

- predator and pest control covering thousands of hectares of kiwi habitat, much of the land in private ownership
- kiwi call monitoring
- advocacy to raise people's awareness about kiwi and promote 'kiwi-safe' behaviours.

MOEHAU ENVIRONMENT GROUP (MEG)

WWW.MEG.ORG.NZ

The Moehau Environment Group is focused on protecting and enhancing the natural environment of the northern Coromandel Peninsula. The group's objective is to achieve reintroduction and recovery of endangered species.

Key activities are:

- possum and rat control programmes
- installing and maintaining stoat traps protecting kiwi habitat in conjunction with Department of Conservation
- assisting with the protection of pāteke (brown teal) and nesting dotterel
- weeding and planting coastal environments
- running community education programmes.

KAURI 2000

WWW.KAURI2000.CO.NZ/

Kauri 2000 is a long term project to recreate significant stands of kauri on public conservation land on the Coromandel Peninsula. Less than 1 per cent of New Zealand's kauri forest now exists as extensive logging, land use change and recently kauri dieback have impacted on the populations of this forest giant. The community group aims to plant up to 2,500 kauri seedlings per year to help increase the kauri population on the peninsula

If you want to get involved with a community group, contact the Waikato Biodiversity Forum on 0800 BIODIV (0800 246348) or visit www.waikatobiodiversity.org.nz for a list of groups in your area or of interest.



More than 76 environmental community groups are active on the peninsula.

SPECIAL NATIVE WILDLIFE

The Coromandel is one of the Waikato's biological treasures, especially the Moehau Range which is one of New Zealand's six 'biodiversity hot spots'.

All the Coromandel offshore islands managed by the Department of Conservation are free of introduced mammals. This allows species now absent from the mainland to survive and thrive, including tuatara, tīeke (North Island saddleback), hihi (stitchbird), Middle Island tusked wētā and many species of lizards and seabirds.

On the mainland, the heavily forested ranges provide extensive habitat for many other threatened species, including bats, lizards, kākāriki, kākā and Coromandel brown kiwi. It is the only place in New Zealand where both Archey's and Hochstetter's frogs are found.

Clear, cool streams that flow from the forested ranges harbour a healthy range of invertebrates and fish, including long and short-finned eels, giant, banded and short-jawed kōkopu and kōaro. The Coromandel's freshwater fishery is dominated by banded kōkopu, probably because the large proportion of the Coromandel's rivers flow unimpeded into harbours.

Coastal wetlands shelter matuku hūrepo (Australasian bittern), mohoperehū (banded rail) and mātātā (North Island fernbird), and the Firth of Thames is an internationally important area for migratory wading birds, with many coming from as far afield as Alaska and Siberia for the southern hemisphere summer.

Dunes and beaches are home to New Zealand dotterel, wrybills, skinks and Caspian terns.

Some special features of the Coromandel include:

- the world's only populations of the Moehau stag beetle, the Moehau wētā, and Middle Island tusked wētā
- a stronghold for Archey's and Hochstetter's frogs
- an estimated 500 kiwi living in the Moehau Range, managed in three large areas at Moehau, Kuaotunu, and Whenuakite
- a thriving population of pāteke (brown teal), introduced in the early 2000s at Port Charles, now spread through the north
- thriving island populations of lizards no longer found on the mainland, including Suter's and Whitaker's skinks
- the extremely rare Coromandel striped gecko.

The intensive pest control work and planting being undertaken by agencies and community groups will help restore native wildlife populations on the peninsula.



*Pāteke are thriving at Port Charles.
Photo: Department of Conservation.*



Pest mammals, especially ship rats and stoats, are major predators of our native birds and are a real threat. Pest control is the best thing everyone can do to assist in providing a safe habitat for native birds.

SPECIAL PLANTS

TIPU MOTUHAKE

ABOUT 130 PLANT SPECIES NATIVE TO THE WAIKATO REGION ARE AT RISK OF EXTINCTION. PLANTING THREATENED SPECIES WILL HELP ENSURE THEIR SURVIVAL. THERE ARE ALSO A NUMBER OF DISTINCT SPECIES OF PLANTS THAT OCCUR ONLY OR MAINLY IN THE COROMANDEL ECOLOGICAL REGION.

Some threatened or special species that you may like to try establishing:

MĀORI/COMMON NAMES	BOTANICAL NAME	ECOLOGICAL DISTRICT*	PLANT TYPE	HABITAT
Coromandel daisy	<i>Celmisia adamsii</i> var. <i>adamsii</i> [†]	C Ta Th	Herb	Rocky outcrops.
Coromandel groundsel	<i>Brachyglottis myrianthos</i> [†]	C Ta Th	Shrub	Lowland/sub-montane shrublands – streamsides.
Crimson rātā	<i>Metrosideros carminea</i>	C Ta Th W	Vine	Lowland/sub-montane forest, epiphyte on trees.
Fern	<i>Loxosoma cunninghamii</i>	C Ta Th	Fern	Tall scrub and on banks in the lowland zone.
Five finger species	<i>Pseudopanax laetus</i> [†]	C Ta Th	Shrub	Lowland forest. Looks like five finger but has purple stems.
Giant-flowered broom	<i>Carmichaelia williamsii</i> [†]	C	Shrub	Open forest/scrub on steep coastal sites.
Kirk's daisy	<i>Brachyglottis kirkii</i> var. <i>kirkii</i> [†]	C Ta Th	Shrub	Usually an epiphyte that grows on trees in lowland and lower montane forest. Plant in areas free of deer, goats and possums.
Maire taiki/mida	<i>Mida salicifolia</i>	C Ta Th W	Small tree	Lowland forest.
Ngaio	<i>Myoporum laetum</i>	C Ta Th W	Small tree	Coastal cliffs, back dunes, clay banks.
Para/king fern	<i>Ptisana salicina</i> (<i>Marattia salicina</i>)	C Ta Th W	Fern	Lowland forest to dark gullies, cave entrances. Eaten by pigs.
Pimelea	<i>Pimelea tomentosa</i> [†]	C Ta Th W	Shrub	Open cliff tops, scrub.
Pittosporum species	<i>Pittosporum virgatum</i> [†]	C Ta Th	Small tree	Lowland and sub-montane forest.
Pīngao	<i>Ficinia spiralis</i> (<i>Desmoschoenus spiralis</i>)	C Ta W	Tussock	Golden coloured sand dune plant. Talk to your local beachcare coordinator if you wish to plant this species.
Raukawa	<i>Raukawa edgerleyi</i> [†]	C Ta Th W	Small tree	Sub-montane/montane cloud forest.
Sand tussock	<i>Poa billardierei</i> (<i>Austrofestuca littoralis</i>)	C Ta W	Tussock	Dune plant – most suitable sites will be public land. Talk to your local beachcare coordinator if you wish to plant this species.
Sinclair's Tamingi	<i>Epacris sinclairii</i> [†]	Th	Shrub	Grows in kauri forest in the steep-land and montane zones.
Whau	<i>Entelea arborescens</i>	C Ta Th W	Small tree	Coastal cliffs, forest, clay banks.
Wrinkle-leaved kumara	<i>Pomaderris rugosa</i> [†]	C Ta Th W	Shrub	Low fertility clay banks, roadsides, slips.

*C = COLVILLE, TA = TAIRUA, TH = THAMES, W = WAIHI

[†] = THREATENED SPECIES



Pseudopanax laetus.



Some of these plants may be difficult to source, but nurseries may be able to provide them if given prior notice. It is important that these species are eco-sourced (seed collected from naturally occurring plants) from the local district.

However, do not remove threatened plants from the wild.

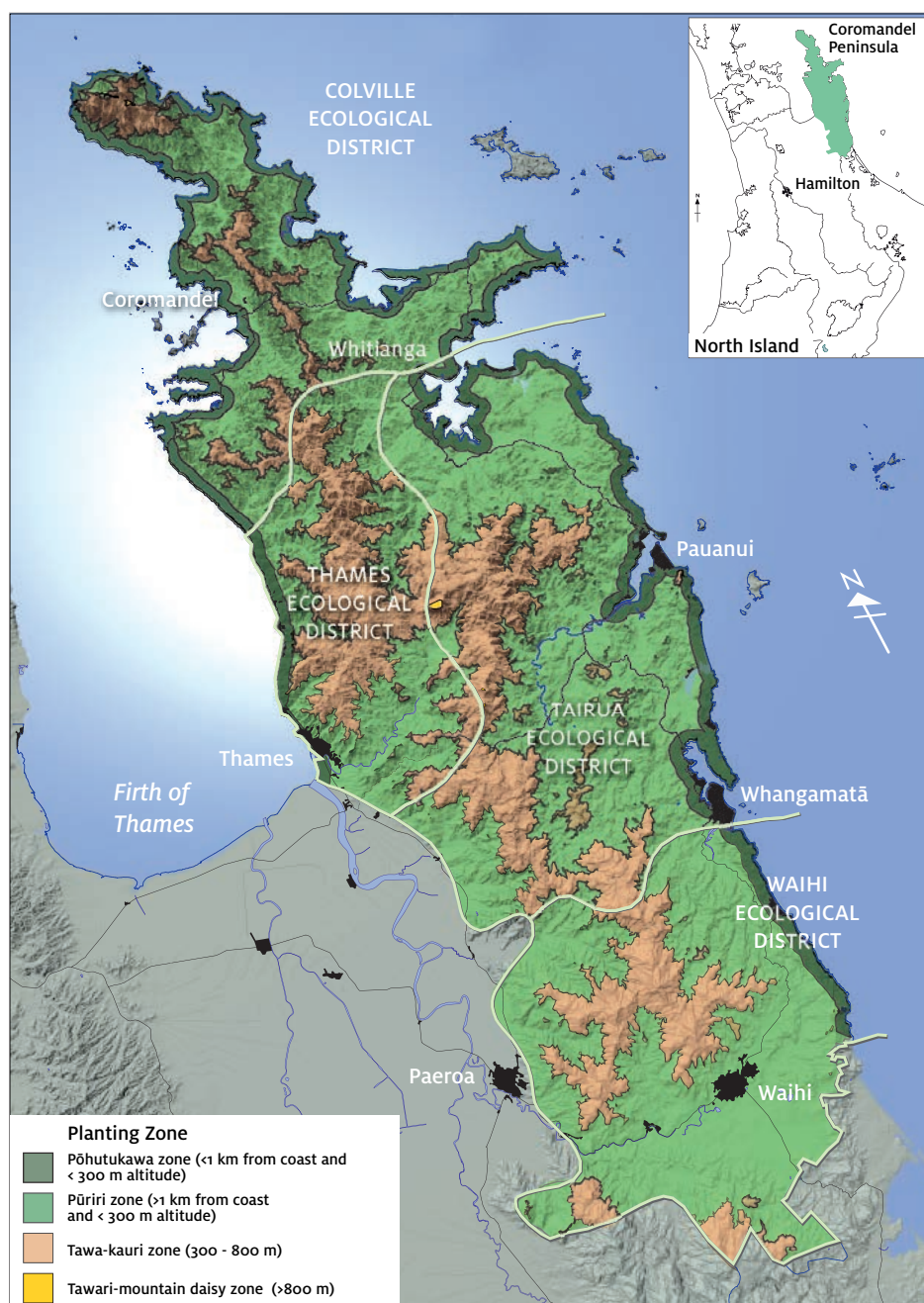
PLANTING GUIDE

TOHUTOHU WHAKATŌNGA

WHAT SHOULD I PLANT?

In this guide we describe four separate zones, representing the different vegetation types that would have historically clothed the land.

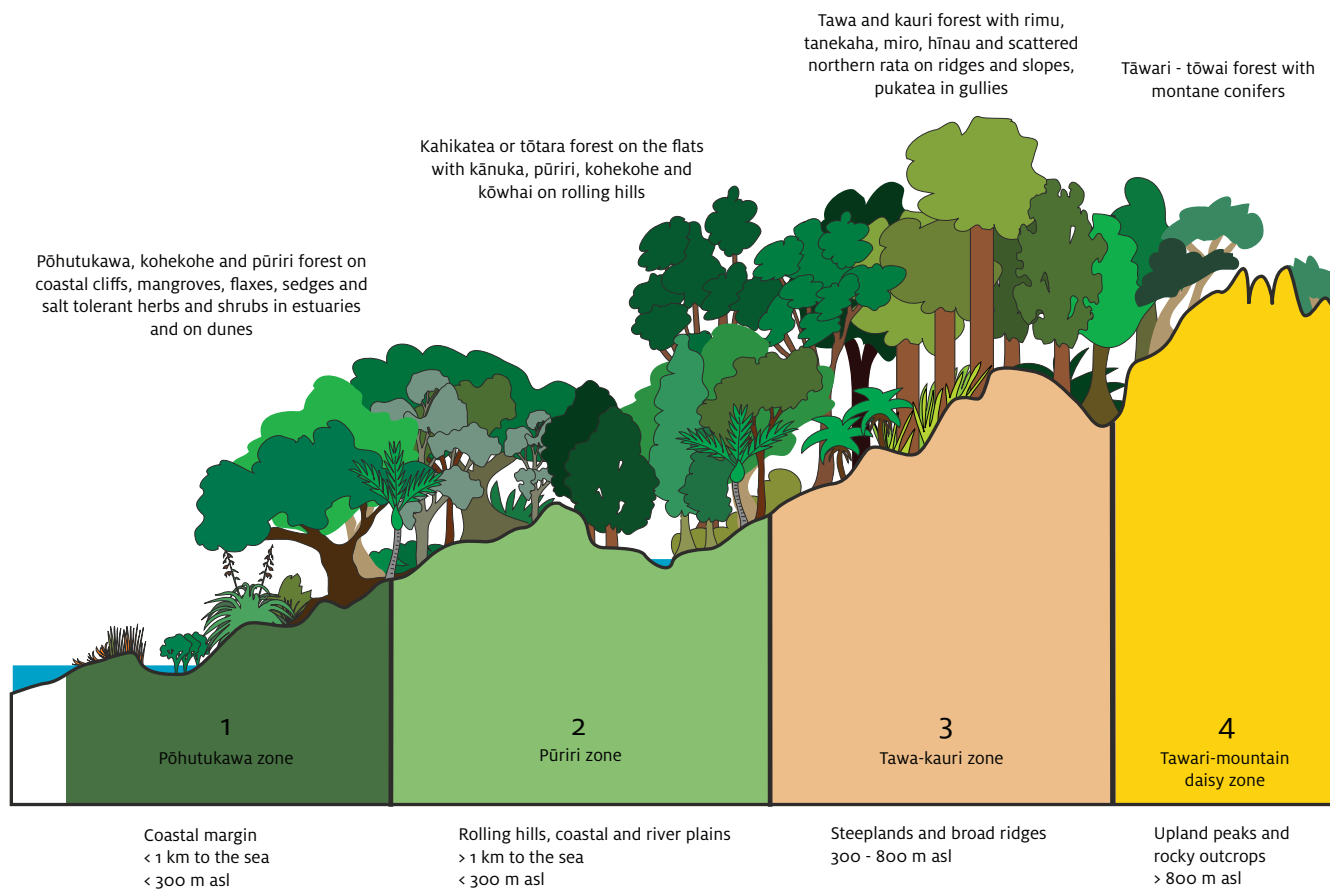
Lists of plants that are best suited to the zones are on pages 31-42. The lists include trees, shrubs and climbers that grow naturally in the Colville, Tairua, Thames and Waihi ecological districts. Plant the species that grow in your ecological district.



Use the map and zone descriptions on the following pages to find out which zone you are in.

Planting zone map

If you are unsure where your property is on this map, you may need to consult a topographic map. Read the zone descriptions on the following pages to also help determine which zone you are in.



PLANTS TO AVOID

There are a number of popular native plants that do not naturally occur in the Coromandel ecological region. We recommend you avoid planting these, particularly in restoration areas, as they could be a threat to the ecological integrity of the area. Some species may do exceedingly well and become weeds, eventually taking over your site. We also recommend avoiding the use of cultivars and nursery hybrids. These can introduce inappropriate genetic diversity to local populations and do not occur naturally.

Some examples of non-local native species:

- Kermadec Island pōhutukawa (*Metrosideros kermadecensis*) and cultivars such as Tahitian Princess and Māori Princess (these are often used in amenity plantings) – restoration plantings should only use coastal eco-sourced pōhutukawa *Metrosideros excelsa*
- large leaf kōwhai (*Sophora tetraptera*)
- Three Kings puka (*Meryta sinclairii*)
- purple akeake (*Dodonea viscosa* var. *purpurea*)

Some species may only occur in one or two of the ecological districts. For example, the two lacebark species of *Hoheria* *sexstylosa* and *Hoheria populnea* have distinct distributions and hybridise easily. Care needs to be taken not to plant the wrong

species in your ecological district. Refer to plant list on pages 31-42 to see which species occur in your ecological district.

We do not include any non-native plants in this guide. While some exotic plants are popular food sources for native birds they can also be problem weeds, for example hawthorn (*Crataegus* species), coastal banksia (*Banksia integrifolia*), tui tree (*Prunus campanulata*) and tree privet (*Ligustrum lucidum*).



Ask permission from the landowners before collecting seeds, plants or forest litter. You cannot take plants from reserves without a permit from the Department of Conservation.

WHERE CAN I FIND QUALITY PLANTS?

You can grow your own plants, transplant self-seeded ones (not garden escapees) from areas where they are unwanted (for example under pine forests or along fencelines) or buy them from a reputable native plant nursery. In addition to planting, you can try spreading seed or forest litter from a similar site into an existing stand to encourage regeneration. Check the seedlings for weed species like privet and climbing asparagus. Avoid collecting forest litter from weedy areas and forest edges.

Here are some native plant nurseries that may have plants sourced from Colville, Tairua, Thames and Waihi ecological districts. Ask for eco-sourced plants (those collected from local naturally occurring native plants).

LOCAL COMMUNITY NURSERIES

NAME	ADDRESS	PHONE	ONLINE
Waihi Native Plants	Waihi	021 880 293	warren@waihinateplants.nz waihinateplants.nz
Mercury Bay Environment Trust Kim Lawry	Whitianga	027 282 3369	mbenvironmentaltrust@gmail.com
Colville Junction Harbour Care Nursery	Colville	07 866 6920	nursery@colvillejunction.co.nz
Kauri 2000 Janet Munns		(07) 866 0468	

COMMERCIAL NURSERIES

NAME	ADDRESS	PHONE	WEB
Forest Flora Nursery	63 Hakarimata Road, RD1 Ngāruawāhia	Wayne Bennett (07) 824 7167	www.forestflora.co.nz
Naturally Native NZ Plants	30 Gamman Mill Rd, Oropi RD3, Tauranga	0800 33 44 56	
Te Whangai Trust	1011 Miranda Road, Miranda 2473	027 240 2455	orders@tewhangai.org tewhangai.org
Waitaia Nursery/W.A.N.T (Waitaia Advanced Native Trees)	85 Waitaia Road, Kuaotunu RD2 Whitianga	(07) 869 5910	waitaianursery.co.nz
Forever More Native Plants	Hahei	Jayne Nightingale 021 799 694 Jeanette Spooner 021 422 034	nightingalekj@xtra.co.nz Facebook: Forever More Native Plants
Pare Hauraki Native Nursery	111 Queen Street, Thames	021 091 71246 (07) 867 9104	jamien@parehauraki.nz parehauraki.nz



Many species in the planting lists are not readily available from commercial nurseries.

Nurseries may be prepared to source and grow these for you, but will need a good lead-in time (2-3 years). Join forces with other people restoring sites in your area to bulk order less common species.

WHERE CAN I GET MORE INFORMATION ON NATIVE PLANTS?

The New Zealand Plant Conservation Network website has photos and descriptions of many native plants, along with notes on where to buy and how to grow them:

WWW.NZPCN.ORG.NZ

You can also check out the websites from some of the nurseries on the previous page.



See the factsheet 'Planting natives in the Waikato Region' for more information on growing, collecting, buying and planting native plants.

Kauri forest - Pūriri Zone Kennedy Bay



SPECIAL PLANTING SITUATIONS

ĒTAHI TŪĀHUA WHAKATŌ MOTUHAKE

REMNANT TREE STANDS

Remnant native trees standing alone or as part of a small cluster in a grazing paddock are common sights throughout the peninsula. These trees are isolated, highly stressed and are slowly degrading due to stock access, wind exposure and lack of support vegetation in the understorey. They often become a haven for weed species. Fencing these stands, removing weeds and infill planting will assist their recovery, and is far quicker, easier and cheaper than planting a new forest from scratch.

Plant the edges as per zone 2D (page 24). Infill large well-lit gaps amongst existing large trees with further pūriri, kānuka, tōtara or tī kōuka (cabbage trees) at about 10m spacing, and smaller growing shrub material, at closer spacing, from plant list 1 or 2 (pages 31-38).

In the shade and shelter beneath a dense canopy of existing trees you may introduce species from plant list 3 on page 39. This will increase the lifespan of the existing trees, encourage natural regeneration, and provide food and habitat for more native animals. Take care not to damage the roots of existing plants.

Refer to waikatoregion.govt.nz (type 'forest fragment' in the search box) for information on managing native forest fragments.



Restoring remnant tree stands is quicker than planting a forest from scratch.

STREAM BANKS AND RIPARIAN ZONES

Well-managed stream bank margins are essential to protect our water quality. They assist by improving biodiversity, providing shade, food and habitat for freshwater life, filtering surface run off, removing excess nutrients, reducing stream bank erosion and preventing stock access.

The first step is to fence the stream to keep animals off the banks and out of the water. Ensure the fence location is stable, not prone to flooding and provides enough width for desired planting (minimum of 5m, though 15m will achieve a more sustainable piece of bush).

Plant species that can tolerate wet or flood conditions near the watercourse, including toetoe (*Austroderia fulvida*) and harakeke (*Phormium tenax*).

On higher ground, tree and shrub species may be introduced. Plant species that can tolerate high light conditions first, such as makomako (wineberry), karamū, tī kōuka (cabbage tree), koromiko, mānuka, māpou and whauwhaupaku (five finger). Some canopy species can also tolerate these conditions, particularly in frost-free areas, for example kānuka, kōwhai, rewarewa, kahikatea, tōtara, mataī, rimu, and titoki.

Where small plants are needed on unstable stream banks try native cutty grass (*Gahnia pauciflora*, *Gahnia setifolia*, *Gahnia lacera*) or the broad-leaved sedge *Machaerina sinclairii*.

Coriaria arborea (tutu) is a native plant that readily colonises disturbed areas and is valuable for stream bank stabilisation where stock are excluded.

Second and third stage planting on the higher ground would include mamaku, ponga, pate, māhoe, pūriri and putaputawētā. You can also plant these if the site is well-shaded by existing tall vegetation.

In damp areas such as seeps or swamps adjacent to the stream bank, plants such as pukatea, swamp maire, kahikatea, swamp astelia, upokotangata (giant umbrella sedge) and pūrei (*Carex secta*) are suitable.

Refer to waikatoregion.govt.nz (type 'riparian planting' in the search box) for information on managing waterways.

STABILISING SLIPS, ROAD CUTTINGS AND EROSION-PRONE AREAS

Land instability is a significant problem on the peninsula, reducing productivity of land and causing pollution of waterways. Fencing erosion-prone areas to exclude animals, and planting with appropriate species, will assist in stabilising soil.

Plants suitable for the restoration of slip faces tend to be those that are more tolerant of low fertility. Plant smaller growing nurse species to achieve initial cover, for example tutu (a valuable nitrogen fixer, though toxic to humans and stock); sedge species such as *Machaerina sinclairii*, *Gahnia pauciflora*, *Gahnia setifolia* and toetoe (*Austroderia fulvida*); ferns including kiokio and ponga; and small shrubs such as mingimingi, koromiko, mānuka, and kumarahou (*Pomaderris* species). Small leaved pōhuehue (*Muehlenbeckia complexa*) is a scrambling plant that can be grown over slips as well.

Once cover is established and the slip has stabilised, trees such as olearia species, kānuka and rewarewa may be introduced.

Unstable steep slips and roadside cuttings may be best re-established by distributing seeds of native plants onto the bare soil. This is best done as soon as possible to beat the weeds that may otherwise colonise the site.



Planting road cuttings with appropriate species will assist in stabilising soil.



Natural regeneration on a road cutting.

COROMANDEL PLANTING ZONES

ROHE PŌHUTUKAWA :

PŌHUTUKAWA ZONE 1

COASTAL MARGIN

(<1KM TO THE COAST, <300M ABOVE SEA LEVEL)

This zone is a narrow band around the peninsula extending up to 1km inland in the Tairua, Thames and Waihi ecological districts and up to 2km inland in the Colville ecological district. See map on page 22.

The landform ranges from flat coastal terraces to gently rolling hill country below 300m in altitude, to steep exposed sea cliffs.

Old pōhutukawa stands, coastal cliff flaxlands, dunes and freshwater swamps grading into large areas of mangroves and coastal rushlands provide a distinctive landscape character for this zone.

There is very little original indigenous vegetation remaining in this zone, and what remains is largely modified with the inclusion of many exotic species. Some remaining examples of the various vegetation types that occur in the coastal zone are found at Fletcher, Otama, Stony, Fantail and Kennedy bays, Hot Water Beach, Whangapoua and Whitianga harbours, Otahu Estuary, Duck Creek, in Kirita bush remnants, between Whenuakite to Tapuaetahi Bay and Pauanui hill.

The Auckland Council has a series of fact sheets on planting natives in coastal areas. The species listed (with two exceptions) are applicable to the Coromandel Peninsula, and therefore plants found only in the coastal zone are not included in the plant list on pages 31-42.

Refer to the Auckland Council's website, aucklandcouncil.govt.nz, for the following coastal planting guides (search for 'coastal planting').

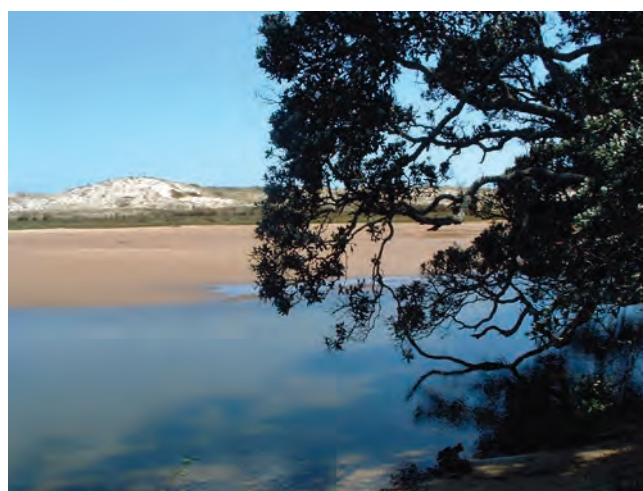
1. Coastal planting – general
2. Dunes
3. Coastal forests
4. Coastal clifftops
5. Coastal wetlands, saltmarshes & estuaries
6. Coastal clay banks



The following plants are listed in the Auckland Council guides but are not native to the Coromandel region and should not be planted here.

DON'T PLANT: cliff hebe
Veronica obtusata

DON'T PLANT: kōwhai/west coast kōwhai
Sophora fulvida



Coastal forest - Pohutukawa Zone Kuaotunu

Some of the coastal plants in the Auckland Council guides do not occur in all of the ecological districts (particularly the dune species that are absent in the Thames ecological district). Use the list below to check that the species is native to your ecological district. A star indicates the species is present in your district.

COMMON NAME	BOTANICAL NAME	ECOLOGICAL DISTRICT*			
		C	Ta	Th	W
Bachelor's button	<i>Cotula coronopifolia</i>	*	*	*	
Coastal Kōwhai	<i>Sophora chathamica</i>	*	*		
Coastal spear grass	<i>Austrostipa stipoides</i>	*	*	*	
Coastal Toetoe	<i>Austroderia splendens</i>		*		*
Coastal tree daisy	<i>Olearia solandri</i>	*		*	
Hinarepe/sand tussock	<i>Poa billardierei</i> (<i>Austrofestuca littoralis</i>)	*	*		*
Kāpūngāwhā/kuawa/lake clubrush	<i>Schoenoplectus tabernaemontani</i>	*	*		
Kōkihi/New Zealand spinach	<i>Tetragonia implexicoma</i>	*	*		*
Korokio	<i>Corokia cotoneaster</i>	*			
Kukaraho/purua/marsh clubrush	<i>Bulboschoenus fluviatilis</i>	*		*	
Makaka/New Zealand broom	<i>Carmichaelia australis</i>	*	*		*
Pīngao	<i>Ficinia spiralis</i> (<i>Desmoschoenus spiralis</i>)	*	*		*
Saltmarsh ribbonwood	<i>Plagianthus divaricatus</i>	*	*		
Speckled sedge	<i>Carex testacea</i>	*	*		*
Tanguru/coastal tree daisy	<i>Olearia albida</i> (not listed in Auckland Council guides)	*		*	
Taraire	<i>Beilschmiedia tarairi</i>	*	*	*	
Tarakupenga/sand coprosma	<i>Coprosma acerosa</i>	*	*		*
Tauhinu/cottonwood	<i>Ozothamnus leptophyllus</i>	*	*		*
Tawāpou	<i>Planchonella costata</i> (<i>Pouteria costata</i>)	*	*		

*C = Colville, Ta = Tairua, Th = Thames, W = Waihi



DEGRADED COASTAL FORESTS

Many coastal forest remnants of pōhutukawa, karaka, pūriri and taraire are in a seriously degraded state and require assistance to ensure their future. Many of these stands are suffering from stock grazing and wind damage, with large gaps between trees, little native understorey and often dense mats of weeds such as ginger, wandering willy (*Tradescantia fluminensis*), agapanthus and plectranthus (*Plectranthus ciliatus*). See weedbusters.org.nz for more information.

Fencing, weed control and infill planting will assist the recovery of these forest stands. Improving a degraded forest stand is far quicker, easier and cheaper than planting a new one.

Plants suitable for infilling canopy gaps include pōhutukawa, pūriri, tawāpou, karaka, taraire and kōwhai planted at about 10m spacing. Smaller growing material such as tī kōuka, harakeke,

ngaio, veronica (hebe), taupata, karamū, olearia and pittosporum should be planted amongst these and around the forest edge at closer spacing to achieve vegetation cover and provide shelter.

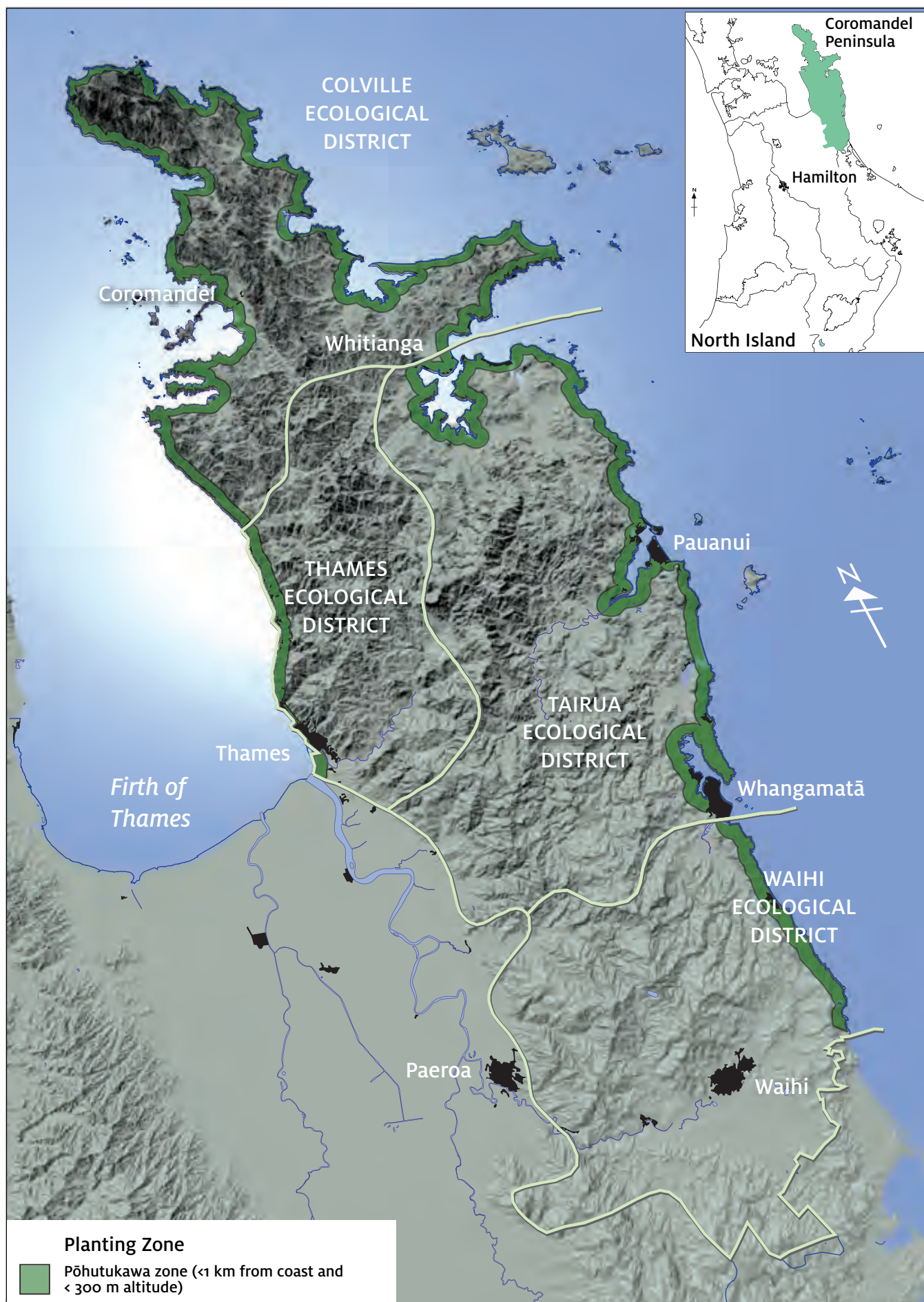
In the shade and shelter beneath an established tree cover, understorey and shade-tolerant plants may be introduced such as kawakawa, hangehange, kohekohe, rangiora, nīkau, ponga, and shore kōwharawhara (*Astelia banksii*). Take care not to damage the roots of existing plants.

This will increase the lifespan of the existing trees, encourage natural regeneration and provide food and habitat for more native animals.

Refer to waikatoregion.govt.nz/forest-fragments for information on managing native forest fragments.



Fencing and planting degraded stands will increase their lifespan.



Pōhutukawa planting zone.

PŪRIRI ZONE 2

ROLLING HILLS, LOWLAND PLAINS AND RIVER TERRACES
(>1KM FROM COAST, ALTITUDE <300M ABOVE SEA LEVEL)

This zone occurs in all four ecological districts and is the largest zone on the peninsula. It includes the lowland and river plains beyond 1km from the coastline around the Whitianga, Whangamata and Tairua estuaries; the Coromandel, Manaia and Whangapoua harbours; Colville, Waikawau and Kennedy bays; and the Waihi Basin. It also includes the lower altitude hills below 300m, such as the passes on the Port Charles Road, Kennedy Bay Road and the 309 Road. See map on page 25.

The land extends from flat or gently sloping lowland terrace through to low, rolling hill country <300m, and includes some moderate to steep slopes.

The soils vary with the topography, from deep, acidic soils with low natural fertility on hill slopes to the alluvial soils in the valleys which have higher fertility but are often poorly drained.

The climate is generally mild, although coastal winds may cause salt damage in some exposed sites. Where this is a risk, plant hardy species that also occur in the coastal zone (see Pōhutukawa zone, page 19).

The indicator tree species for this zone are pūriri, which occurs to an altitude of 300m, and taraire, which occurs primarily in the Colville ecological district.

Typical vegetation would have been:

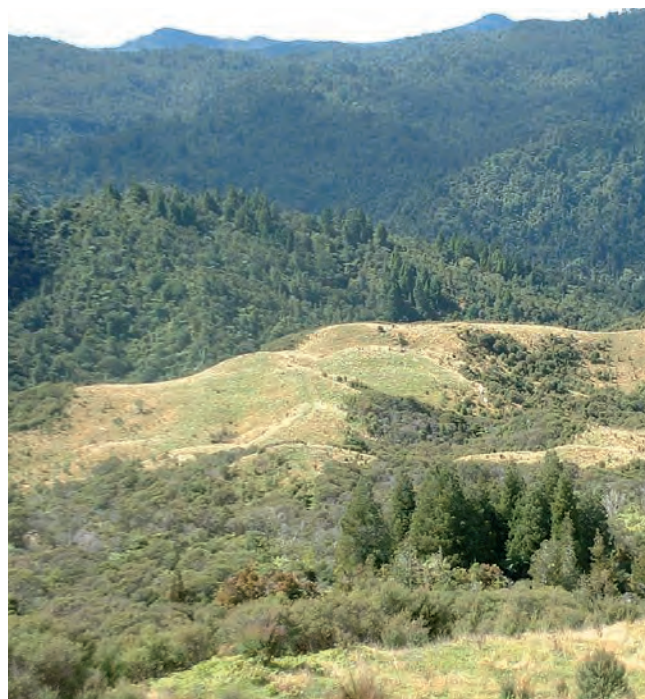
- Semi-coastal broadleaf forest on better drained gentle slopes closer to the coast, with a canopy of pūriri, kohekohe, tītoki, karaka and kōwhai. Taraire also occurs in the canopy in the northern parts of the peninsula (mainly in the Colville ecological district).
- Conifer forest on the flat, poorly drained river terraces. Kahikatea, tōtara and kānuka were the dominant forest trees on the poorly drained floodplains with occasional patches of maire tawake (swamp maire) in boggy areas.
- Mixed kauri-conifer-broadleaved forest throughout the hill country with patches of taraire north of Tapu/Tairua. Kauri, rimu, and occasional northern rātā emerged over a canopy of tawa, tānekaha, rewarewa, kohekohe, pūriri, hīnau and pukatea. A thick understorey of small trees, shrubs, ferns, vines and epiphytes such as māhoe, hangehange, nīkau, ponga (silver fern), and kaihua (New Zealand jasmine).

Semi-coastal broadleaf forest is best planted through a shrubby nurse-crop of taupata, tī kōuka, harakeke, karamū, akeake, ngaio, coastal tree daisy and *Veronica macrocarpa* var. *macrocarpa* (*Hebe macrocarpa*). Plant pūriri, tītoki, karaka, ponga (silver fern) and taraire among the shrubs about three or so years later. Then plant kohekohe and nīkau after 10 or so years.

Conifer forest on river terraces should be planted in mainly kahikatea with tī kōuka (cabbage tree) and occasional pukatea and maire tawake (in wet, swampy areas). Understorey includes hukihuki (swamp coprosma), porokaiwhiri (pigeonwood), harakeke, kiokio and native sedges (e.g., *Carex secta*, *Gahnia xanthocarpa*). In better drained areas on alluvial plains you can add occasional mataī and rimu with kaikomako, turepo (milk tree), small-leaved māhoe, *Coprosma areolata* and *Coprosma rhamnoides*. On drier sites and the top of river banks plant tōtara with pūriri, kohekohe, tītoki, tī kōuka (cabbage tree) and kōwhai closer to the coast, and a dense understorey similar to 2B (on the next page). A good example is along the Tairua River.

If you wish to plant kahikatea forest see waikatoregion.govt.nz (type 'Kahikatea' in the search box) or call 0800 800 401 for a copy of Forest Fragment Management: Kahikatea Forest Fragments.

Mixed kauri-conifer-broadleaf forest is usually best established through a dense nurse crop of mānuka/kānuka and hardy shrubs. If your site has a cover of gorse and/or broom you can spot-spray and/or plant in between the gorse and broom plants. They will die once they are shaded out by the taller native plants. Plant the right species for your topography: ridges and spurs, slopes, or gullies.



2A) RIDGES AND SPURS

These should be mostly planted with small or tough-leaved plants like kauri and tānekaha (in dense clusters on the ridge tops and knolls), with other canopy species at 5-10m apart, including tōtara, rewarewa and kānuka, and occasional miro, rimu, and white maire among densely planted shrubs of māpou, rangiora, heketara, mānuka, whauwhaupaku (five finger), horoeke (lancewood), mingimingi, cutty grass (*Gahnia lacera*), and kauri grass (*Astelia trinervia*).

2B) SLOPES

Slopes should eventually have a canopy of mostly tawa, tōwai, kohekohe, pūriri and (in the Colville ecological district) taraire, spaced about 5-10m apart, with occasional emergent northern rātā, over a dense understorey of ponga, kawakawa, hangehange, nīkau, kanono and māhoe. Include occasional rewarewa, rimu, miro, tōtara, whauwhaupaku and Hutton's kōhūhū (*Pittosporum huttonianum*). Plant a nurse crop of hardy shrubs first, and plant pūriri, pigeonwood, kawakawa, hangehange, pukatea and ponga after three years. Plant tawa, kohekohe, northern rātā and nīkau much later, beneath a dense canopy (10-15 years).

2C) GULLIES

Wet gullies should have pukatea and occasional kahikatea (planted just upslope from streams), with lots of patē, mamaku, whekī, nīkau, and occasional putaputawētā, tī kōuka (cabbage tree), with scattered *Pittosporum huttonianum* and kōtukutuku (tree fuchsia) on well-lit stable stream banks.



Gullies should have lots of pate, nīkau and tree ferns.

2D) BUSH EDGES

Plant bushy light-tolerant shrub species including mānuka, koromiko, whauwhaupaku (five finger), rangiora, karamū and makomako (wineberry).

2E) SPECIMEN TREES AND GARDEN PLANTS

If you don't wish to replant an area of forest, consider the following plants to help enrich this zone. Use them in your garden or in fenced off streamside areas, shelterbelts, and for stock shade trees.

Visit our website for planting guides:

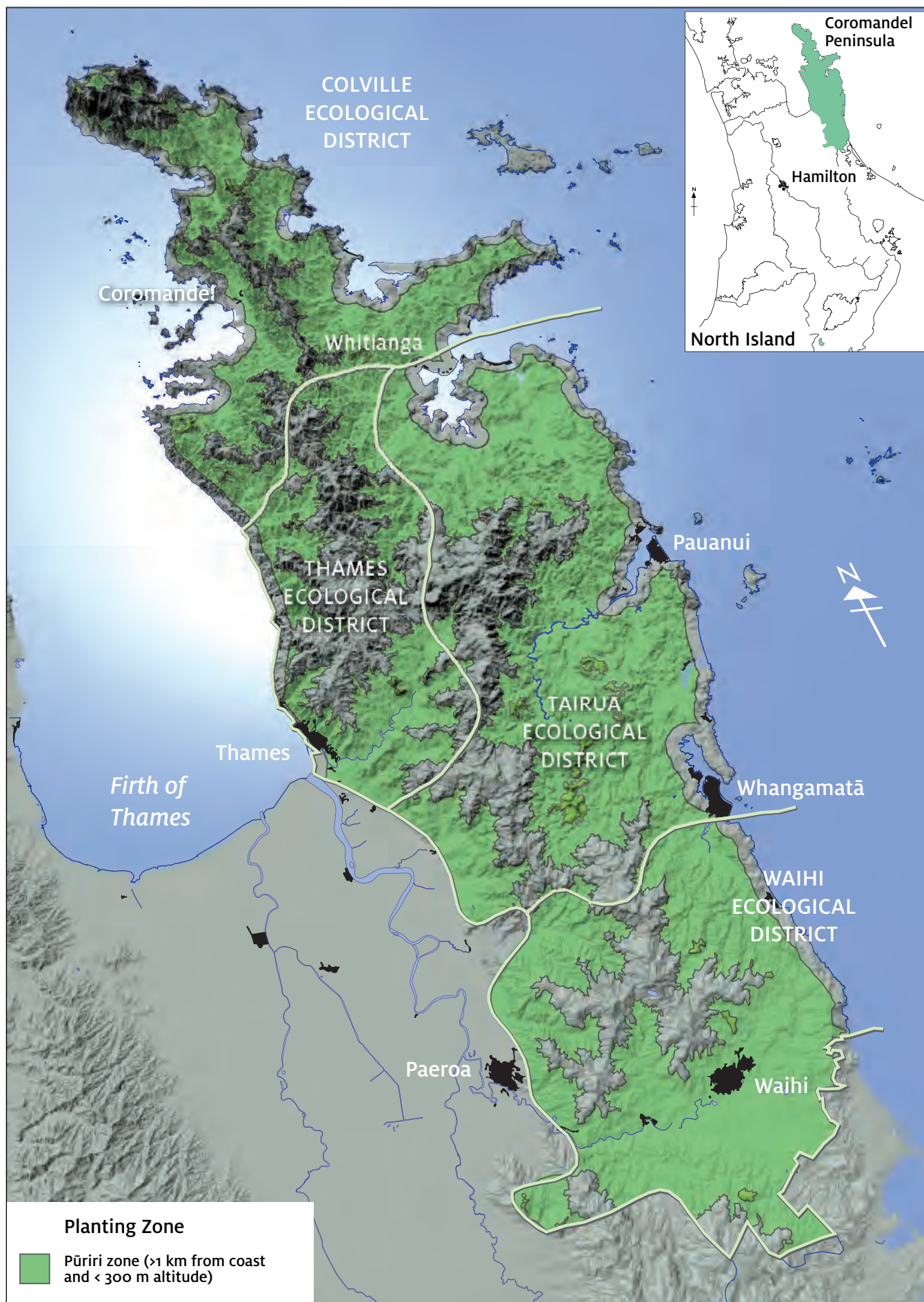
waikatoregion.govt.nz/biodiversity

LARGE TREES	SMALL TREES	SHRUBS
Kauri	Haekaro	Heketara
Northern rātā	Hīnau	Karamū
Pukatea	Horoeka (lancewood)	Kawakawa
Pūriri	Kotukutuku (tree fuchsia)	Koromiko
Rimu	Kōwhai	Mingimingi
Tānekaha	Māhoe	Rangiora
Tītiki	Māpou	Toropapa
Tōtara	Putaputawētā	
	Tī kōuka	

See the plant list on page 31 for more species to plant in this zone.



Plant light-tolerant shrub species on bush edges.



Pūriri planting zone.

TAWA-KAURI ZONE 3

STEEPLANDS AND BROAD RIDGES (300-800M)

This zone includes much of the steep, dissected hill country of the central Coromandel Range. It occurs between 300-800m above sea level, with a large proportion located in the Thames and western Tairua ecological districts, to a lesser extent in the Colville ecological district with the rugged Moehau Range, and the Waihi ecological district with gentler terrain. See map on page 27.

The landform varies from broad almost plateau-like ridges to rolling and very steep sided hills. Soil is generally shallow, particularly on the hill slopes, and of low natural fertility. The zone generally has a higher rainfall and slightly cooler temperatures than the lowland zones. The western side of the range is exposed to coastal westerly winds which can cause salt burn to soft plant material.

The indicator species for this zone are tawa on the slopes and kauri on ridges and spurs. Kohekohe and tōwai are also important species, with kohekohe common below 450m above sea level and tōwai increasing in importance at higher altitude. Kahikatea, pukatea and tōtara would have been more common in the gullies, with small colonies of maire tawake (swamp maire) in damp basins (see zone 2).

Mixed kauri-conifer-broadleaf forest would have been the dominant vegetation (see zone 2 description for tips on planting mixed kauri-conifer-broadleaf forest).

3A) RIDGES AND SPURS

Plant mostly small or tough-leaved plants like kauri, Hall's tōtara (thin barked tōtara), hīnau, tāwari (*Ixerba brexioides*), tōwai, toro, toru, toatoa, occasional tawhairaunui (hard beech), *Pseudopanax discolor* and *Gahnia pauciflora*. Unusual species, such as *Celmisia gracilenta*, *Coprosma dodonaeifolia*, *Veronica pubescens*, crimson and white rātā and *Olearia townsonii* are well suited to exposed plateaus and rocky outcrops along with the more common kāpuka (broadleaf), wharariki (mountain flax), neinei (*Dracophyllum* species) and broad-leaved sedge (*Machaerina sinclairii*).

3B) SLOPES

Slopes should eventually have a canopy of tawa, tōwai, tāwari, rewarewa, hīnau and tāwheowheo (*Quintinia serrata*) spaced about 5-10m apart, with emergent rimu, miro and occasional northern rātā over a dense understorey of kohekohe (below 450m only), rangiora, hangehange, horopito, mountain five finger, toropapa (*Alseuosmia macrophylla*) and māhoe.

3C) GULLIES

Wet gullies should have kahikatea (planted just upslope from streams) and occasional pukatea, with patē, mamaku, putaputawētā, kātote (soft tree fern) and kōtukutuku (on well-lit stream banks). Wet, swampy plateaus would have occasional maire tawake (swamp maire) at the lower altitudes.

3D) BUSH EDGES

Plant bushy light-tolerant shrub species including mānuka, koromiko, whauwhaupaku, rangiora, karamū and makomako.

3E) SPECIMEN TREES AND GARDEN PLANTS

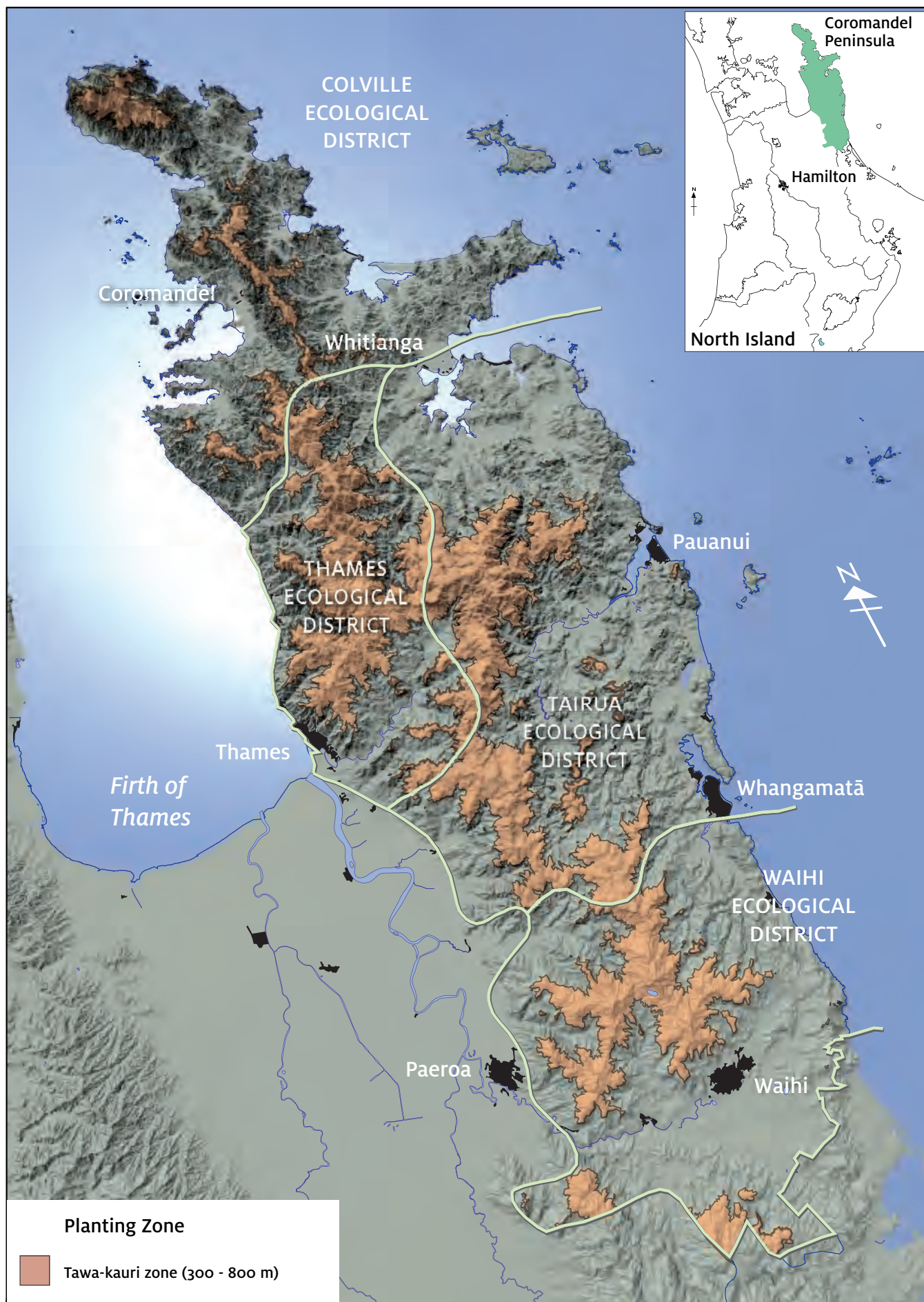
If you don't wish to replant an area of forest, consider the following plants to help enrich this zone. Use them in your garden or in fenced off streamside areas, shelterbelts, and for stock shade trees.

For further information refer to 'Planting native trees in the Waikato region', waikatoregion.govt.nz.



LARGE TREES	SMALL TREES	SHRUBS
Hall's tōtara	Hīnau	Bush snowberry
Kauri	Horoeka	Heketara
Miro	Māhoe	Koromiko
Northern rātā	Māpou	Mingimingi
Rewarewa	Tāwheowheo	Mountain five finger
Rimu	Toro	Neinei (<i>Dracophyllum</i> species)
Tawhairaunui (hard beech)	Toru	Rangiora
Toatoa	Tōwai	Toropapa

SEE THE PLANT LIST ON PAGE 31 FOR MORE SPECIES TO PLANT IN THIS ZONE.



Tawa-kauri planting zone.

TĀWARI-MOUNTAIN DAISY ZONE 4

STEEPLANDS AND BROAD RIDGES (>800M)

This zone is represented in the three northern districts with the peaks of Te Moehau (892m), Colville); Maumaupaki/Camels Back (819m), Thames; and Table Mountain (832m), Tairua.

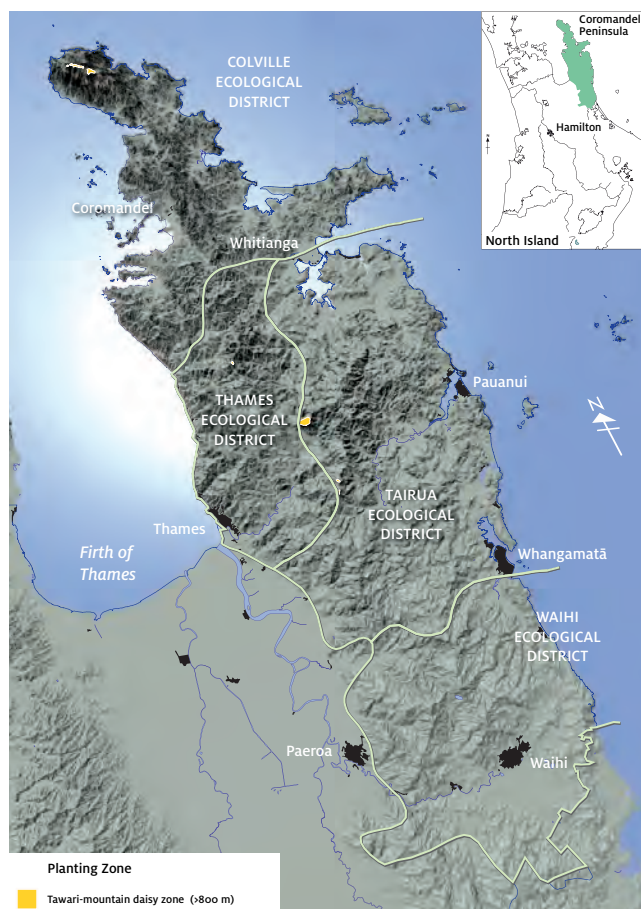
Altitudes in this zone are above 800m. The landform and soils often consist of rocky, exposed peanks, or poorly drained, low fertility plateaus. The entire zone is currently in native forest.

Two vegetation types are common in this zone – montane conifer forest and tōwai-tāwari-tāwheowheo scrub.

Because this zone is all in reserve and fully covered in native forest, there are no planting hints, but typical species are included in the plant list on page 31.



Photo: Department of Conservation.



Tāwari-mountain daisy planting zone.



PLANT LIST FOR COLVILLE, TAIRUA, THAMES AND WAIHI ECOLOGICAL

RĀRANGI TIPU MŌ NGĀ ROHE HAUROPI ŪMANGAWHA, TAIRUA, HOTORENI ME WAIHI

DISTRICTS

Use the ecological district and "Planting zone map" on page 14 and descriptions to find out which colour zone your property is in.

Look for plants with your zone colour and check they are in your ecological district. Note that zone 1 (pōhutukawa zone) is not represented in this table as appropriate species are listed in Auckland Council's coastal planting factsheets.

Plant in proportions indicated on your zone band for each species. Plant mostly species labelled "most" and use species labelled "common" generously. Use plants in the "few" category sparingly, and only plant a few scattered "least" plants. This is a detailed list of species that grow naturally in the area, and some may be difficult to source.

WHAT IS YOUR PLANTING SITUATION?

Are you planting into a bare area exposed to frost, wind, or sun?	go to list 1 on page 31	Plant dense clumps of trees, shrubs, and native grasses to provide shelter and shade out weeds.
Are you planting in a sheltered, frost-free area, or among existing plants, including trees you might have planted more than three years ago?	go to list 2 on page 35	You can also plant species from list 1 in this situation, although they may grow more slowly in the shade.
Are you planting underneath an existing area of forest, or under trees you planted 10 or more years ago that now form an overhead canopy?	go to list 3 on page 39	You can also plant most of the species in list 1 and 2 under existing canopy (except plants like mānuka and kānuka that need high light levels). Plants in lists 1 and 2 will probably grow better where the light levels are higher, e.g. near bush edges and in canopy gaps. This list includes epiphytes which should be grown on existing trees. Note that many ferns may turn up on their own.

It is important that second and third stage planting is carried out for the long term success of your project. Failure to do so could result in establishment of dominant weed species as first stage planting collapses.

First stage planting usually involves short-lived species that can handle high light situations and form a 'nurse cover', such as karamū, koromiko, kumaraho, rangiora and makomako. As shelter and a thin canopy cover is achieved (3-10 years) planting of longer term and some future canopy species such as white maire, miro, pūriri, kāmahī and tōwai can be undertaken.

Third stage is often after 10 or more years, when a semi-established tree cover is achieved. Sensitive species that can tolerate higher levels of shade can then be introduced, such as kohekohe, tawa, nīkau and many fern species and epiphytes. Plants in this category can also be planted under existing degraded stands.

Note that the planting guide is not a comprehensive list of native plant species present in the Coromandel ecological region. See *Coromandel Ecological Region: Survey Report for the Protected Natural Areas Programme* by E. A. Humphreys and A. M. Tyler for a more comprehensive list.

1. PLANT IN THE OPEN (YEARS 1-3)

MĀORI/COMMON NAMES	BOTANICAL NAME	PLANT TYPE	TOPO POSITION	GROWTH RATE	NOTES	
Akeake	<i>Dodonaea viscosa</i>	Small tree				
Akepiro	<i>Olearia furfuracea</i>	Small tree				
Bush snowberry	<i>Gaultheria antipoda</i>	Shrub				
Coprosma shrub	<i>Coprosma macrocarpa</i>	Shrub	  			
Coromandel groundsel	<i>Brachyglottis myrianthos</i>	Shrub			T	
Coromandel tree daisy	<i>Olearia townsonii</i>	Shrub	 			
Cutty grass	<i>Gahnia pauciflora</i>	Sedge	 			
Cutty grass/razor sedge	<i>Gahnia setifolia</i>	Grass				
Dainty daisy	<i>Celmisia gracilentia</i>	Herb				
Hall's tōtara/thin barked tōtara	<i>Podocarpus laetus</i> (<i>P. cunninghamii</i> , <i>P. hallii</i>)	Tree	 			
Harakeke/flax	<i>Phormium tenax</i>	Herb	 			
Heketara/forest tree daisy	<i>Olearia rani</i>	Small tree	  			
Horoeka/lancewood	<i>Pseudopanax crassifolius</i>	Small tree	  			
Houpara/coastal five finger	<i>Pseudopanax lessonii</i>	Small tree				
Hukihuki/swamp coprosma	<i>Coprosma tenuicaulis</i>	Shrub				
Hutton's kohuhu	<i>Pittosporum huttonianum</i>	Small tree	 			
Kahikatea/white pine	<i>Dacrycarpus dacrydioides</i>	Tree	 			
Kaikomako	<i>Pennantia corymbosa</i>	Small tree				
Kānuka	<i>Kunzea species</i> (see footnote 1)	Tree	  			
Kapuka/broadleaf	<i>Griselinia littoralis</i>	Tree	 			
Karaka	<i>Corynocarpus laevigatus</i>	Tree	  			
Karamū	<i>Coprosma robusta</i>	Shrub	  			
Karo	<i>Pittosporum crassifolium</i>	Small tree	 			
Kauri	<i>Agathis australis</i>	Tree	 			
Kauri sedge	<i>Schoenus tendo</i>	Sedge	 			
Kiokio	<i>Blechnum novae-zelandiae</i>	Fern	 			
Kohuhu	<i>Pittosporum tenuifolium</i>	Small tree	  			
Korokio	<i>Corokia buddleoides</i>	Shrub	 			
Koromiko/Veronica (hebe)	<i>Veronica stricta</i> var. <i>stricta</i> (<i>Hebe stricta</i>)	Shrub	  			
Kotukutuku/tree fuchsia	<i>Fuchsia excorticata</i>	Small tree	 			
Kōwhai (small leaved)	<i>Sophora microphylla</i>	Tree	 			
Kumarahou (wrinkle-leaved)	<i>Pomaderris rugosa</i>	Shrub				
Kumarahou/gum digger soap	<i>Pomaderris kumerahou</i>	Shrub				
Makomako/wineberry	<i>Aristotelia serrata</i>	Small tree	  			
Mamangi/tree coprosma	<i>Coprosma arborea</i>	Small tree	 			

SYMBOLS USED IN SPECIES LISTS

TOPOGRAPHIC POSITION

-  Crest or ridge
-  Slope
-  Gully or foot of slope

GROWTH RATE

-  Fast
-  Medium
-  Slow

NOTES

-  Potentially difficult to source
-  Essential to source locally (eco-source)
-  All parts are poisonous
-  Threatened plant
-  Attracts birds
-  Tolerates boggy soil

	PŪRIRI ZONE/ ABUNDANCE	TAWA-KAURI ZONE/ ABUNDANCE	TĀWARI ZONE/ ABUNDANCE	COLVILLE ED	TAIRUA ED	THAMES ED	WAIHI ED
	Few			*	*	*	*
	Few	Few	Few	*	*	*	*
	Few	Few	Few	*	*	*	*
	Common	Few		*	*	*	*
	Few	Few		*	*	*	
	Few	Few	Few	*	*	*	*
	Few	Common	Few	*	*	*	*
	Few	Few		*	*	*	*
		Least	Least	*	*	*	
	Few	Common	Few	*	*	*	*
	Most			*	*	*	*
	Common	Common	Few	*	*	*	*
	Few	Few	Few	*	*	*	*
	Few			*	*	*	*
	Common			*	*	*	*
	Common	Common		*	*	*	
	Most	Common		*	*	*	*
	Few	Few		*	*	*	*
	Most	Common	Few	*	*	*	*
	Few	Few	Common	*	*	*	
	Few			*	*	*	*
	Most	Common	Few	*	*	*	*
	Few			*	*	*	*
	Common	Few	Least	*	*	*	*
	Few	Few	Few	*	*	*	*
	Common	Few		*	*	*	*
	Few	Few		*	*	*	*
			Few	*	*	*	*
	Common	Few		*	*	*	*
	Few	Common	Least	*	*	*	*
	Common	Few		*	*	*	*
	Few			*	*	*	*
	Few			*	*	*	*
	Few	Common	Least	*	*	*	*
	Few	Least		*	*	*	*

Footnote 1

Kānuka/*Kunzea ericoides* has now been split into 10 different species. *Kunzea robusta* and *Kunzea linearis* now replace *Kunzea ericoides*. See de Lange PJ (2014) *A revision of the New Zealand Kunzea ericoides (Myrtaceae) complex* at <https://phytokeys.pensoft.net/article/1924/>.

For pōhutukawa zone plants, refer to Auckland Council guide (page "Coastal margin (<1km to the coast, <300m above sea level)" on page 19 for more information).

The New Zealand Plant Conservation Network website has photos and descriptions of many native plants, along with notes on where to buy and how to grow them. See www.nzpcn.org.nz.

1. PLANT IN THE OPEN (YEARS 1-3) CONTINUED

MĀORI/COMMON NAMES	BOTANICAL NAME	PLANT TYPE	TOPO POSITION	GROWTH RATE	NOTES	
Mānuka	<i>Leptospermum scoparium</i> var. <i>scoparium</i>	Small tree	  		 	
Mapere/giant sedge	<i>Gahnia xanthocarpa</i>	Sedge	  			
Māpou	<i>Myrsine australis</i>	Small tree	  			
Mataī	<i>Prumnopitys taxifolia</i>	Tree	 			
Pittosporum species	<i>Pittosporum virgatum</i>	Small tree	 		T	
Pōhutukawa	<i>Metrosideros excelsa</i>	Tree	 			
Prickly mingimingi	<i>Leptecophylla juniperina</i> subsp. <i>juniperina</i> (<i>Cyathodes juniperina</i>)	Shrub	  			
Rangiora	<i>Brachyglottis repanda</i>	Shrub	  			
Rewarewa	<i>Knightia excelsa</i>	Tree	 			
Rimu	<i>Dacrydium cupressinum</i>	Tree	 			
Soft mingimingi	<i>Leucopogon fasciculatus</i>	Shrub	 			
Swamp astelia	<i>Astelia grandis</i>	Lily			 	
Tānekaha/celery pine	<i>Phyllocladus trichomanoides</i>	Tree	 			
Tarata/lemonwood	<i>Pittosporum eugenioides</i>	Tree	 			
Tauhinu	<i>Pomaderris amoena</i> (ex <i>P. ericifolia</i>)	Shrub				
Tawhai raunui/hard beech	<i>Fuscopora truncata</i> (<i>Nothofagus truncata</i>)	Tree	 			
Thick-leaved tree daisy	<i>Olearia pachyphylla</i>	Shrub			T	
Tī kōuka/cabbage tree	<i>Cordyline australis</i>	Small tree	  		 	
Tī kōuka/cabbage tree (forest)	<i>Cordyline banksii</i>	Small tree	 			
Titoki	<i>Alectryon excelsus</i>	Tree	  			
Toatoa	<i>Phyllocladus toatoa</i>	Tree	 			
Toetoe	<i>Austroderia fulvida</i>	Grass	 			
Toetoe tuhara/broad leaved sedge	<i>Machaerina sinclairii</i>	Sedge	 			
Toru	<i>Toronia toru</i>	Small tree	 			
Tōtara	<i>Podocarpus tōtara</i>	Tree	  			
Tutu	<i>Coriaria arborea</i>	Shrub	 			
Twiggy coprosma	<i>Coprosma rhamnoides</i>	Shrub	  			
Veronica (hebe)	<i>Veronica macrocarpa</i> var. <i>macrocarpa</i> (<i>Hebe macrocarpa</i>)	Shrub	 			
Wharariki/flax (mountain)	<i>Phormium cookianum</i>	Herb	 			
Whauwhaupaku/five finger	<i>Pseudopanax arboreus</i>	Small tree	  			

SYMBOLS USED IN SPECIES LISTS

TOPOGRAPHIC POSITION

-  Crest or ridge
-  Slope
-  Gully or foot of slope

GROWTH RATE

-  Fast
-  Medium
-  Slow

NOTES

-  Potentially difficult to source
-  Essential to source locally (eco-source)
-  All parts are poisonous
- T** Threatened plant
-  Attracts birds
-  Tolerates boggy soil

	PŪRIRI ZONE/ ABUNDANCE	TAWA-KAURI ZONE/ ABUNDANCE	TĀWARI ZONE/ ABUNDANCE	COLVILLE ED	TAIRUA ED	THAMES ED	WAIHI ED
	Most	Common	Few	*	*	*	*
	Few	Few		*	*	*	*
	Common	Common	Few	*	*	*	*
	Few	Few		*	*	*	*
	Least			*	*		
	Few			*	*	*	*
	Common	Few	Few	*	*	*	*
	Most	Common	Few	*	*	*	*
	Most	Common	Few	*	*	*	*
	Common	Common	Few	*	*	*	*
	Common	Few	Few	*	*	*	*
	Few	Least		*	*	*	
	Few	Few		*	*	*	*
	Few	Few		*	*	*	*
	Least			*	*	*	*
		Few	Few	*	*	*	*
	Least				*		
	Common	Few	Least	*	*	*	*
	Few	Least	Least	*	*	*	*
	Common	Few		*	*	*	*
		Few	Few	*	*	*	*
	Common	Few		*	*	*	*
	Few	Few	Few	*	*	*	*
	Few	Few	Few	*	*	*	*
	Common	Few		*	*	*	*
	Common	Common	Common	*	*	*	*
	Common	Few		*	*	*	*
	Few			*	*	*	*
							*
	Common	Few		*	*	*	*

For plants in the pōhutukawa zone, refer to Auckland Council's coastal planting guides (see page 19 for more information).

The New Zealand Plant Conservation Network website has photos and descriptions of many native plants, along with notes on where to buy and how to grow them. See www.nzpcn.org.nz.

2. PLANT IN SHELTERED AREAS OR AMONG EXISTING PLANTS (YEARS 3-10)

MĀORI/COMMON NAMES	BOTANICAL NAME	PLANT TYPE	TOPO POSITION	GROWTH RATE	NOTES	
Akapuka/shining puka	<i>Griselinia lucida</i>	Small tree/epiphyte				
Cutty grass	<i>Gahnia lacera</i>	Sedge				
Five finger species	<i>Pseudopanax laetus</i>	Shrub			   	
Haekaro	<i>Pittosporum umbellatum</i>	Small tree				
Hangehange	<i>Geniostoma rupestre</i>	Shrub	  			
Heath	<i>Archeria racemosa</i>	Small tree				
Horopito (lowland)/pepperwood	<i>Pseudowintera axillaris</i>	Small tree				
Horopito (mountain)/pepperwood	<i>Pseudowintera colorata</i>	Small tree				
Hūpiro/stinkwood	<i>Coprosma foetidissima</i>	Shrub				
Hutu	<i>Ascarina lucida</i> var. <i>lucida</i>	Small tree				
Kāmahi	<i>Weinmannia racemosa</i>	Tree				
Kanono	<i>Coprosma grandifolia</i>	Small tree	  			
Karamū/shining coprosma	<i>Coprosma lucida</i>	Shrub	  			
Kātote/soft tree fern	<i>Cyathea smithii</i>	Tree fern	  			
Kauri grass	<i>Astelia trinervia</i>	Lily				
Kawakawa/pepper tree	<i>Macropiper excelsum</i>	Shrub	  			
Mahoe/whiteywood	<i>Melicytus ramiflorus</i>	Small tree	  			
Maire taike/mida	<i>Mida salicifolia</i>	Small tree	  		   	
Maire tawake/swamp maire	<i>Syzygium maire</i>	Tree			 	
Mairehau	<i>Leionema nudum</i>	Shrub	 			
Mamaku	<i>Cyathea medullaris</i>	Tree fern	  			
Miro	<i>Prumnopitys ferruginea</i>	Tree	 			
Mountain neinei/large grass tree	<i>Dracophyllum traversii</i>	Small tree	 			
Narrow leaved maire	<i>Nestegis montana</i>	Small tree	 			
Neinei	<i>Dracophyllum latifolium</i>	Small tree	 			
Orihou/mountain five finger	<i>Pseudopanax colensoi</i> var. <i>colensoi</i>	Small tree	 			
Pahautea/mountain cedar	<i>Libocedrus bidwillii</i>	Tree	 			

SYMBOLS USED IN SPECIES LISTS

TOPOGRAPHIC POSITION

-  Crest or ridge
-  Slope
-  Gully or foot of slope

GROWTH RATE

-  Fast
-  Medium
-  Slow

NOTES

-  Potentially difficult to source
-  Essential to source locally (eco-source)
-  All parts are poisonous
-  Threatened plant
-  Attracts birds
-  Tolerates boggy soil

	PŪRIRI ZONE/ ABUNDANCE	TAWA-KAURI ZONE/ ABUNDANCE	TĀWARI ZONE/ ABUNDANCE	COLVILLE ED	TAIRUA ED	THAMES ED	WAIHI ED
	Few	Few		*	*	*	*
	Few	Few		*	*	*	*
	Few	Few		*	*	*	*
	Few			*	*	*	*
	Common	Common	Few	*	*	*	*
			Few		*	*	
	Few	Common	Few	*	*	*	*
		Few	Common	*	*	*	*
	Few	Few		*	*		
		Few		*	*	*	*
	Few	Few					*
	Few	Common	Few	*	*	*	*
	Few	Common	Few	*	*	*	*
	Few	Common	Common	*	*	*	*
	Few	Few	Few	*	*	*	*
	Common	Few		*	*	*	*
	Most	Common	Few	*	*	*	*
	Few				*	*	*
	Few	Few		*	*	*	*
	Few	Few	Few	*	*	*	*
	Common	Common		*	*	*	*
	Few	Common	Few	*	*	*	*
		Few	Common	*	*	*	
	Few			*	*	*	*
		Few	Few	*	*	*	*
		Few	Common	*	*	*	
		Few	Few	*		*	*

For plants in the pōhutukawa zone, refer to Auckland Council's coastal planting guides (see page 19 for more information).

The New Zealand Plant Conservation Network website has photos and descriptions of many native plants, along with notes on where to buy and how to grow them. See www.nzpcn.org.nz.

2. PLANT IN SHELTERED AREAS OR AMONG EXISTING PLANTS (YEARS 3-10)

CONTINUED

MĀORI/COMMON NAMES	BOTANICAL NAME	PLANT TYPE	TOPO POSITION	GROWTH RATE	NOTES	
Pikopiko/common shield fern	<i>Polystichum neozelandicum subsp. neozelandicum</i> (<i>Polystichum richardii</i>)	Fern				
Pimelea	<i>Pimelea tomentosa</i>	Shrub			  	
Ponga/silver tree fern	<i>Cyathea dealbata</i>	Tree fern	  			
Porokaiwhiri/pigeonwood	<i>Hedycarya arborea</i>	Small tree	 			
Psuedopanax	<i>Pseudopanax discolor</i>	Small tree				
Pukatea	<i>Laurelia novae-zelandiae</i>	Tree	 	 		
Pūriri	<i>Vitex lucens</i>	Tree	 			
Putaputawētā/marble leaf	<i>Carpodetus serratus</i>	Small tree	  			
Ramarama	<i>Lophomyrtus bullata</i>	Small tree	 			
Rātā vine (crimson)	<i>Metrosideros carminea</i> and <i>Metrosideros fulgens</i>	Vine	 			
Taraire	<i>Beilschmiedia tarairi</i>	Tree	 			
Tāwheowheo	<i>Quintinia serrata</i>	Small tree	  			
Thin leaved coprosma	<i>Coprosma areolata</i>	Shrub			 	
Tī koraha/dwarf cabbage tree	<i>Cordyline pumilio</i>	Shrub	 			
Toro	<i>Myrsine salicina</i>	Small tree	 			
Tōwai	<i>Weinmannia silvicola</i>	Tree	  			
Turepo/milk tree	<i>Streblus heterophyllus</i>	Tree	 			
Turutu/blueberry	<i>Dianella nigra</i>	Herb	 			
Veronica (hebe)	<i>Veronica pubescens</i> (<i>Hebe pubescens</i>)	Shrub	 			
Wharangi	<i>Melicope ternata</i>	Small tree	 			
Wheki/rough tree fern	<i>Dicksonia squarrosa</i>	Tree fern	  			
White maire	<i>Nestegis lanceolata</i>	Small tree	 			

SYMBOLS USED IN SPECIES LISTS

TOPOGRAPHIC POSITION

-  Crest or ridge
-  Slope
-  Gully or foot of slope

GROWTH RATE

-  Fast
-  Medium
-  Slow

NOTES

-  Potentially difficult to source
-  Essential to source locally (eco-source)
-  All parts are poisonous
-  Threatened plant
-  Attracts birds
-  Tolerates boggy soil

	PŪRIRI ZONE/ ABUNDANCE	TAWA-KAURI ZONE/ ABUNDANCE	TĀWARI ZONE/ ABUNDANCE	COLVILLE ED	TAIRUA ED	THAMES ED	WAIHI ED
	Few	Few	Few	*	*	*	*
	Few	Least			*	*	*
	Most	Common	Least	*	*	*	*
	Common	Common		*	*	*	*
	Few	Common	Few	*	*	*	*
	Common	Few		*	*	*	*
	Common	Few		*	*	*	*
	Common	Common	Few	*	*	*	*
	Few	Few		*	*	*	*
	Few	Few	Least	*	*	*	*
	Few			*	*	*	
	Few	Common	Common	*	*	*	*
	Few			*	*		*
	Few		Least	*		*	
	Few	Common	Common	*	*	*	*
	Most	Most	Common	*	*	*	*
	Few			*		*	*
	Least	Least	Least	*	*	*	*
	Few	Few		*	*	*	*
	Few			*	*	*	*
	Common	Common	Few	*	*	*	*
	Few	Least		*	*	*	*

For plants in the pōhutukawa zone, refer to Auckland Council's coastal planting guides (see page 19 for more information).

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3. PLANT IN EXISTING BUSH AREAS OR UNDER DENSE CANOPY (YEARS 10 +)

MĀORI/COMMON NAMES	BOTANICAL NAME	PLANT TYPE	TOPO POSITION	GROWTH RATE	NOTES	
Akatawhiwhi/scarlet rātā vine	<i>Metrosideros fulgens</i>	Vine				
Akatea/small-leaved rātā vine	<i>Metrosideros perforata</i>	Vine				
Coprosma	<i>Coprosma dodonaeifolia</i>	Shrub				
Hīnau	<i>Elaeocarpus dentatus</i> var. <i>dentatus</i>	Tree				
Huruhuru whenua/shining spleenwort	<i>Asplenium oblongifolium</i>	Fern				
Kahakaha/perching lily	<i>Astelia hastata</i> (<i>Collospermum hastatum</i>)	Lily/epiphyte				
Kaihua/NZ jasmine	<i>Parsonsia heterophylla</i>	Vine				
kaiwhiria/NZ jasmine	<i>Parsonsia capsularis</i>	Vine				
Kakaha/mountain astelia	<i>Astelia fragrans</i>	Lily				
Kareao/supplejack	<i>Ripogonum scandens</i>	Vine				
Kiekie	<i>Freycinetia baueriana</i>	Vine				
Kiwakiwa/creek fern	<i>Cranfillia fluviatilis</i> (<i>Blechnum fluviatile</i>)	Fern				
Kohekohe	<i>Dysoxylum spectabile</i>	Tree				
Kōhia/NZ passionfruit	<i>Passiflora tetrandra</i>	Vine				
Kohurangi/Kirk's daisy	<i>Brachyglottis kirkii</i> var. <i>angustior</i>	Shrub/epiphyte				
Kōwharawhara/perching lily	<i>Astelia solandri</i>	Lily/epiphyte				
Manamana/hen and chickens fern	<i>Asplenium bulbiferum</i>	Fern				
Nīkau	<i>Rhopalostylis sapida</i>	Tree				
Northern rātā	<i>Metrosideros robusta</i>	Tree				
Pānako/thread fern	<i>Icarus filiformis</i> (<i>Blechnum filiforme</i>)	Fern/vine				
Para/king fern	<i>Ptisana salicina</i> (<i>Marattia salicina</i>)	Fern				
Patē/seven finger	<i>Schefflera digitata</i>	Shrub				
Petipeti/crown fern	<i>Lomaria discolor</i> (<i>Blechnum discolor</i>)	Fern				
Puawānanga	<i>Clematis paniculata</i>	Vine				
Rātā vine (white climbing)	<i>Metrosideros diffusa</i>	Vine				
Rātā vine (white)	<i>Metrosideros albiflora</i>	Vine				
Raukatauri/hanging spleenwort	<i>Asplenium flaccidum</i>	Fern/epiphyte				

SYMBOLS USED IN SPECIES LISTS

TOPOGRAPHIC POSITION

-  Crest or ridge
-  Slope
-  Gully or foot of slope

GROWTH RATE

-  Fast
-  Medium
-  Slow

NOTES

-  Potentially difficult to source
-  Essential to source locally (eco-source)
-  All parts are poisonous
-  Threatened plant
-  Attracts birds
-  Tolerates boggy soil

	PŪRIRI ZONE/ ABUNDANCE	TAWA-KAURI ZONE/ ABUNDANCE	TĀWARI ZONE/ ABUNDANCE	COLVILLE ED	TAIRUA ED	THAMES ED	WAIHI ED
	Few	Few		*	*	*	*
	Few	Few	Least	*	*	*	*
		Few	Few	*	*	*	
	Common	Common	Few	*	*	*	*
	Few	Few		*	*	*	*
	Few	Few		*	*	*	*
	Few	Few		*	*	*	*
	Few	Few		*	*	*	*
		Few	Least	*	*	*	*
	Few	Few	Few		*	*	*
	Common	Common		*	*	*	*
	Common	Common	Few	*	*	*	*
	Few	Few	Least	*	*	*	*
	Most	Few		*	*	*	*
	Few	Least		*	*	*	*
	Least	Few		*	*	*	
	Few	Few	Few	*	*	*	*
	Few	Few	Least	*	*	*	*
	Common	Few		*	*	*	*
	Few	Few		*	*	*	*
	Few	Few		*	*	*	*
	Least	Least		*	*	*	*
	Common	Few	Least	*	*	*	*
	Few	Few	Common	*	*	*	*
	Least	Least		*	*	*	*
	Few	Few	Least	*	*	*	*
	Few	Few	Few	*	*	*	
	Few	Few	Least	*	*	*	*

For plants in the pōhutukawa zone, refer to Auckland Council's coastal planting guides (see page 19 for more information).

The New Zealand Plant Conservation Network website has photos and descriptions of many native plants, along with notes on where to buy and how to grow them. See www.nzpcn.org.nz.

3. PLANT IN EXISTING BUSH AREAS OR UNDER DENSE CANOPY (YEARS 10 +)

CONTINUED

MĀORI/COMMON NAMES	BOTANICAL NAME	PLANT TYPE	TOPO POSITION	GROWTH RATE	NOTES	
Raukawa	<i>Raukaua edgerleyi</i>	Small tree			  	
Swamp lawyer	<i>Rubus australis</i>	Vine	 			
Sweet fern	<i>Pteris macilenta</i>	Fern				
Tataramoa/bush lawyer	<i>Rubus cissoides</i>	Vine	  			
Taurepo/NZ Gloxinia	<i>Rhabdothamnus solandri</i>	Shrub				
Tawa	<i>Beilschmiedia tawa</i>	Tree	 			
Tāwari	<i>Ixerba brexioides</i>	Tree	 			
Toropapa	<i>Alseuosmia macrophylla</i>	Shrub	  			
Yellow silver pine	<i>Lepidothamnus intermedius</i>	Tree				

SYMBOLS USED IN SPECIES LISTS

TOPOGRAPHIC POSITION	GROWTH RATE	NOTES	
 Crest or ridge	 Fast	 Potentially difficult to source	 Threatened plant
 Slope	 Medium	 Essential to source locally (eco-source)	 Attracts birds
 Gully or foot of slope	 Slow	 All parts are poisonous	 Tolerates boggy soil

YOUR NOTES:

ĀU TUHINGA

	PŪRIRI ZONE/ ABUNDANCE	TAWA-KAURI ZONE/ ABUNDANCE	TĀWARI ZONE/ ABUNDANCE	COLVILLE ED	TAIRUA ED	THAMES ED	WAIHI ED
		Few	Few	*	*	*	*
	Least	Least	Least	*	*	*	*
	Least			*	*	*	*
	Few	Few	Least	*	*	*	*
	Few			*	*	*	*
	Most	Common		*	*	*	*
		Common	Common	*	*	*	*
	Least	Common	Few	*	*	*	*
		Few	Common	*	*	*	*

For plants in the pōhutukawa zone, refer to Auckland Council's coastal planting guides (see page 19 for more information).

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He taiao mauriora

Healthy environment

He ōhanga pakari

Strong economy

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