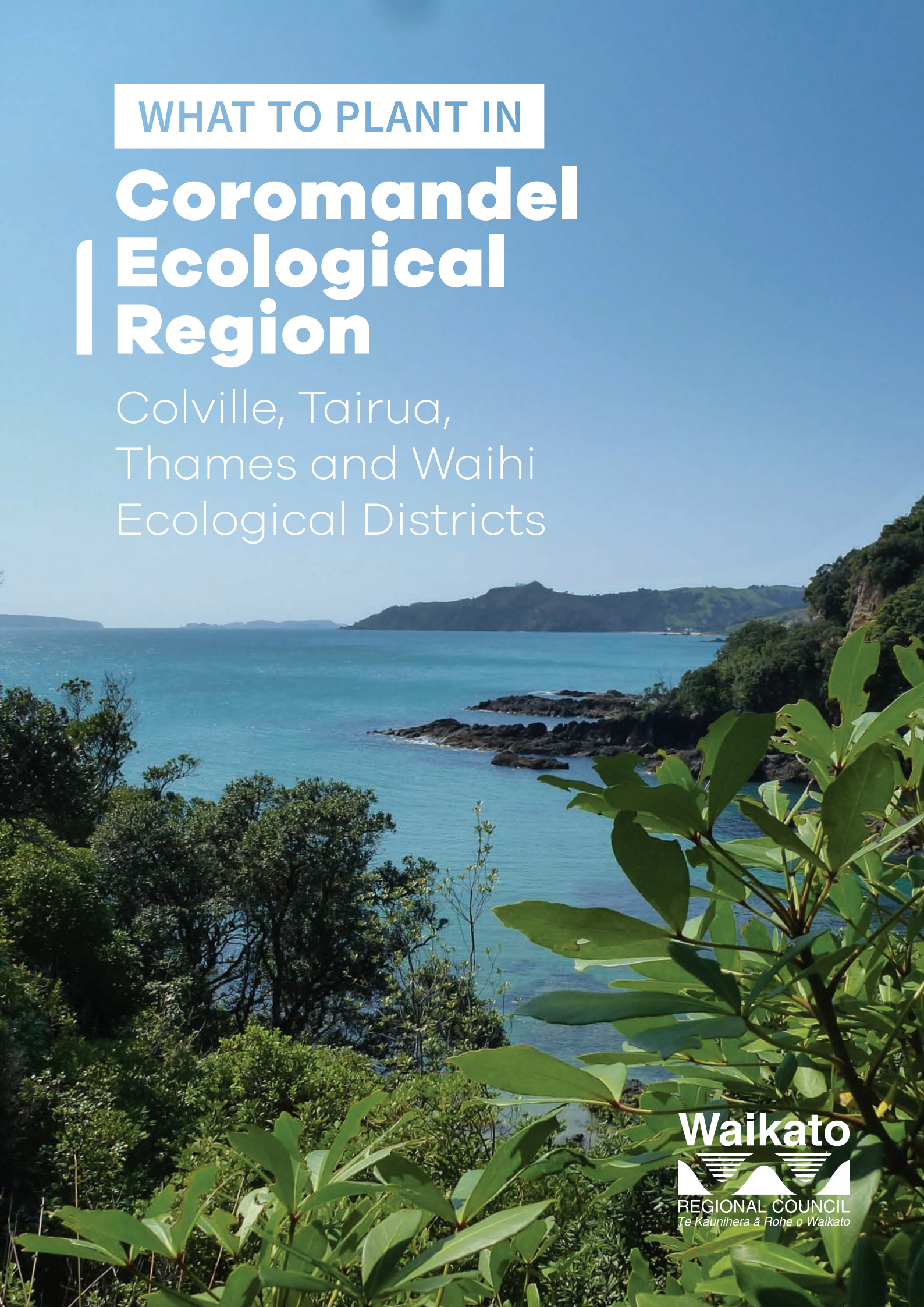
WHAT TO PLANT IN

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

ACKNOWLEDGEMENTS

MIHI WHAKATAU

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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 HAUROPI 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 crosss 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.

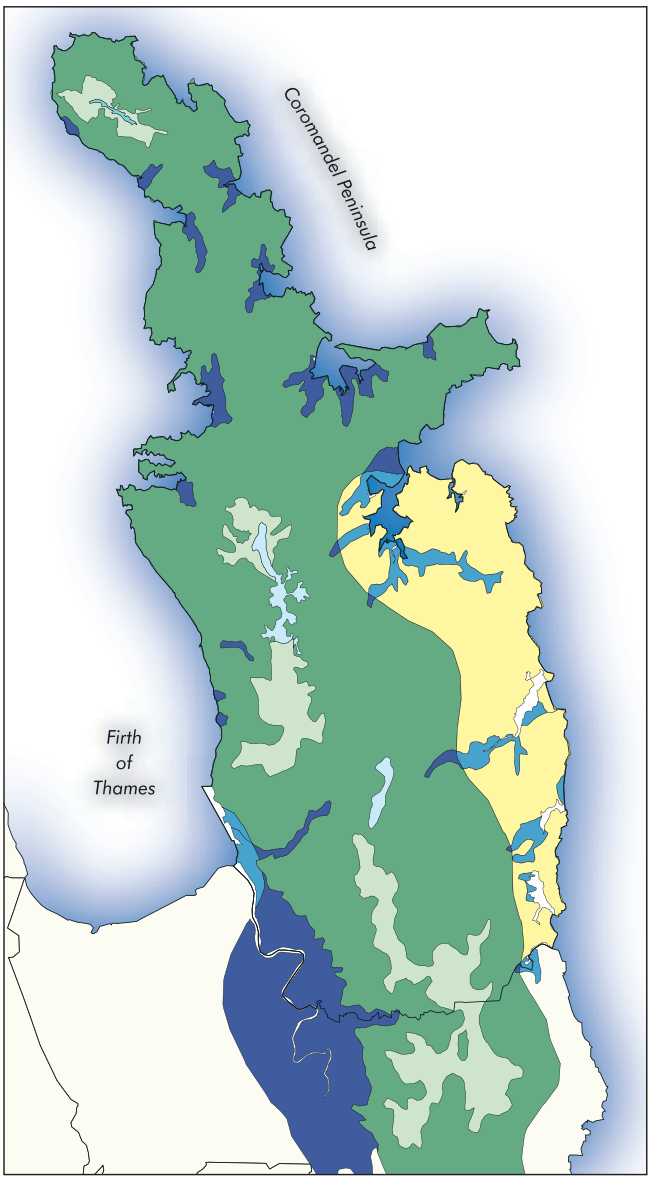
The vegetation has significantly changed since European settlement, with little primary forest remaining. Much of the remaining vegetation has either been cut over or has re-established following fire or clearance for agriculture.

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.

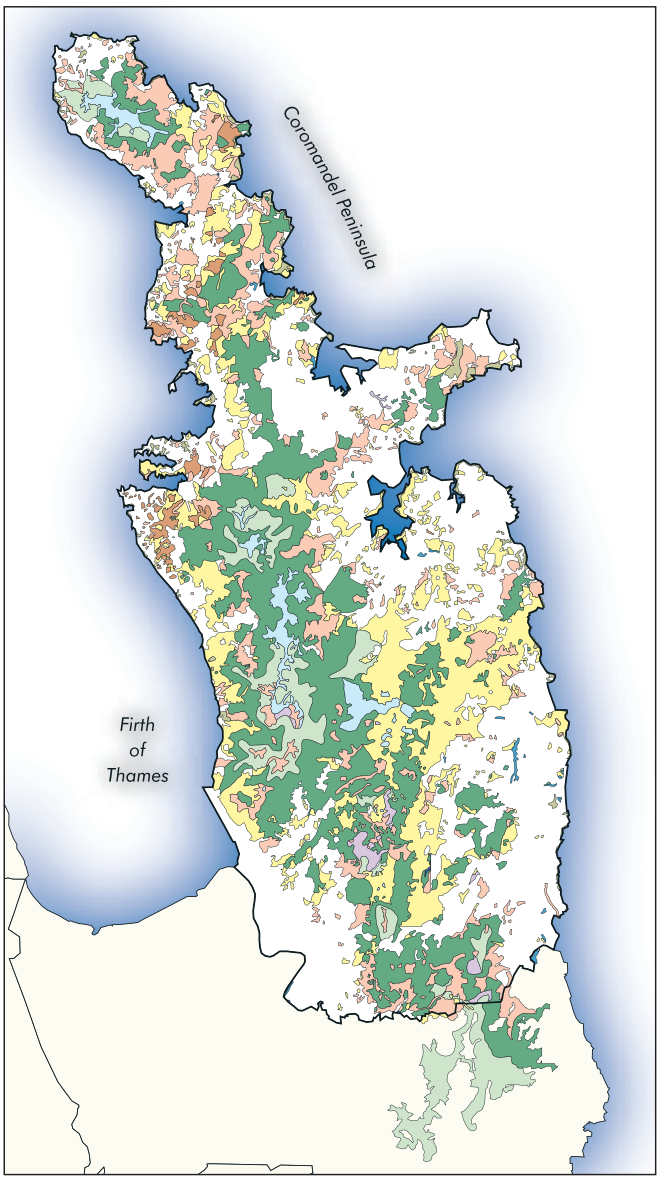
ECOLOGICAL DISTRICT	TOTAL AREA (HA)	REMAINING INDIGENOUS VEGETATION (%)F	REMAINING PRIMARY FOREST (%)
Colville	77,201	59	8
Tairua	90,703	50	4
Thames	40,817	81	18
Waihi	47,290	3	15

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

- Dense conifer forest
- Kauri forest
- Regenerating scrubland
- Rimu - Tawa forest
- Montane forest
- Wetland



COROMANDEL VEGETATION COVER TODAY

- Coastal broadleaf forest
- Dense conifer forest
- Kauri forest
- Regenerating forest
- Regenerating scrubland
- Rimu - Tawa forest
- Taraire - Tawa forest
- Tawa forest
- Montane forest
- Wetland

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. Roading, 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 1per 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	*Celmisia adamsii var. adamsii* [T]	C Ta Th	Herb	Rocky outcrops.
Coromandel groundsel	*Brachyglottis myrianthos* [T]	C Ta Th	Shrub	Lowland/sub-montane shrublands – streamsides.
Crimson rātā	*Metrosideros carminea*	C Ta Th W	Vine	Lowland/sub-montane forest, epiphyte on trees.
Fern	*Loxsoma cunninghamii*	C Ta Th	Fern	Tall scrub and on banks in the lowland zone.
Five finger species	*Pseudopanax laetus* [T]	C Ta Th	Shrub	Lowland forest. Looks like five finger but has purple stems.
Giant-flowered broom	*Carmichaelia williamsii* [T]	C	Shrub	Open forest/scrub on steep coastal sites.
Kirk's daisy	*Brachyglottis kirkii var. kirkii* [T]	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	*Mida salicifolia*	C Ta Th W	Small tree	Lowland forest.
Ngaio	*Myoporum laetum*	C Ta Th W	Small tree	Coastal cliffs, back dunes, clay banks.
Para/king fern	*Ptisana salicina (Marattia salicina)*	C Ta Th W	Fern	Lowland forest to dark gullies, cave entrances. Eaten by pigs.
Pimelea	*Pimelea tomentosa* [T]	C Ta Th W	Shrub	Open cliff tops, scrub.
Pittosporum species	*Pittosporum virgatum* [T]	C Ta Th	Small tree	Lowland and sub-montane forest.
Pīngao	*Ficinia spiralis (Desmoschoenus spiralis)*	C Ta W	Tussock	Golden coloured sand dune plant. Talk to your local beachcare coordinator if you wish to plant this species.
Raukawa	*Raukaua edgerleyi* [T]	C Ta Th W	Small tree	Sub-montane/montane cloud forest.
Sand tussock	*Poa billardierei (Austrofestuca littoralis)*	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	*Epacris sinclairii* [T]	Th	Shrub	Grows in kauri forest in the steepland and montane zones.
Whau	*Entelea arborescens*	C Ta Th W	Small tree	Coastal cliffs, forest, clay banks.
Wrinkle-leaved kumaraho	*Pomaderris rugosa* [T]	C Ta Th W	Shrub	Low fertility clay banks, roadsides, slips.

***C = COLVILLE, TA = TAIRUA, TH = THAMES, W = WAIHI**
[T] = 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.

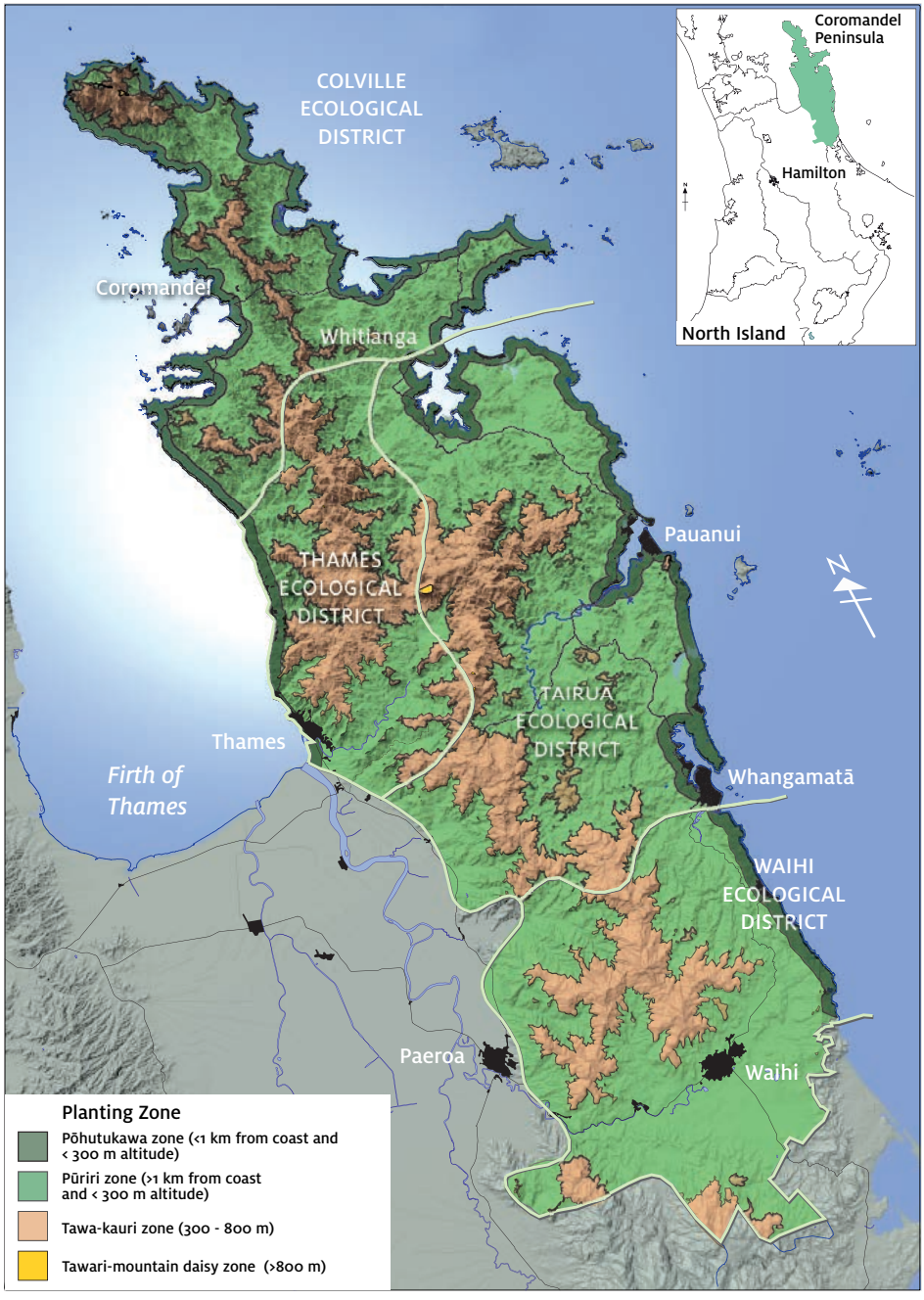
PLANTING GUIDE

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.

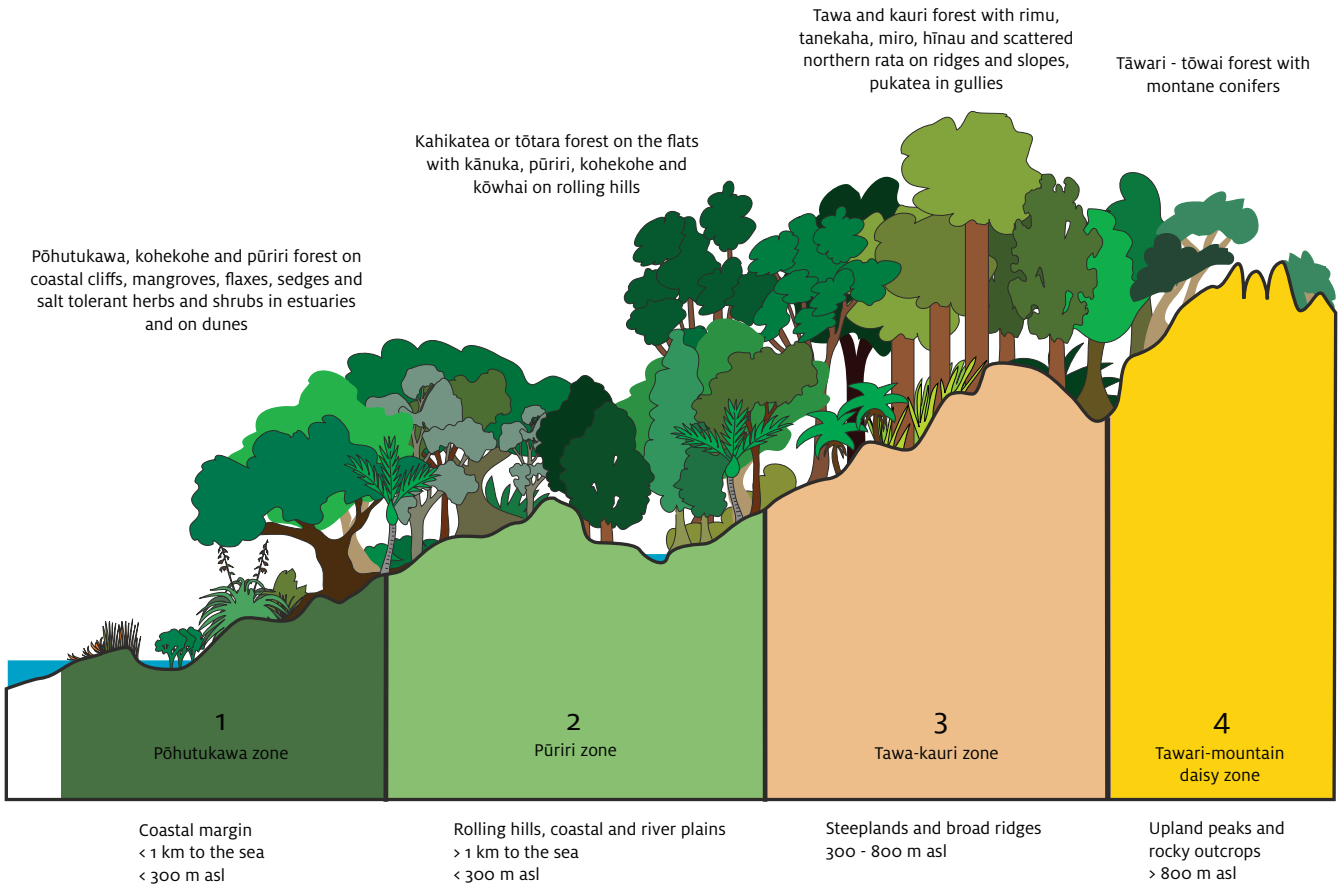
Lists of plants that are best suited to the zones are on pages 31-42. The lists include trees, shrubs and climbers that grow naturally in the Colville, Tairua, Thames and Waihi ecological districts. Plant the species that grow in your ecological district.



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***), tūi 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@waihinativeplants.nz waihinativeplants.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	www.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

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