

# 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](http://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](http://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](http://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/puruu/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](http://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.

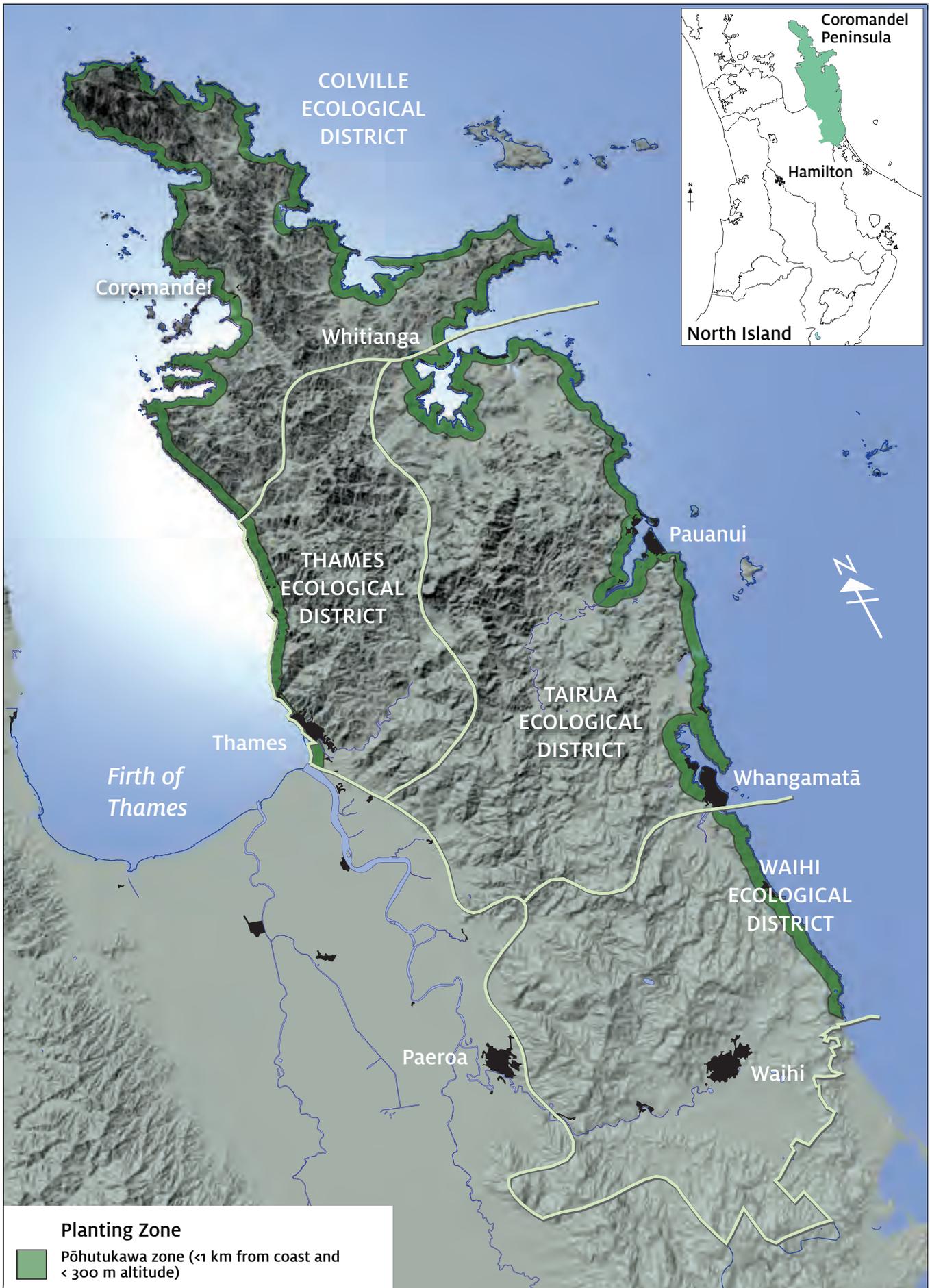
In the shade and shelter beneath an established tree cover, understorey and shade-tolerant plants may be introduced such as kawakawa, hangehange, kohekohe, rangiora, nīkau, ponga, and shore kōwharawhara (*Astelia banksii*). Take care not to damage the roots of existing plants.

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](http://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:

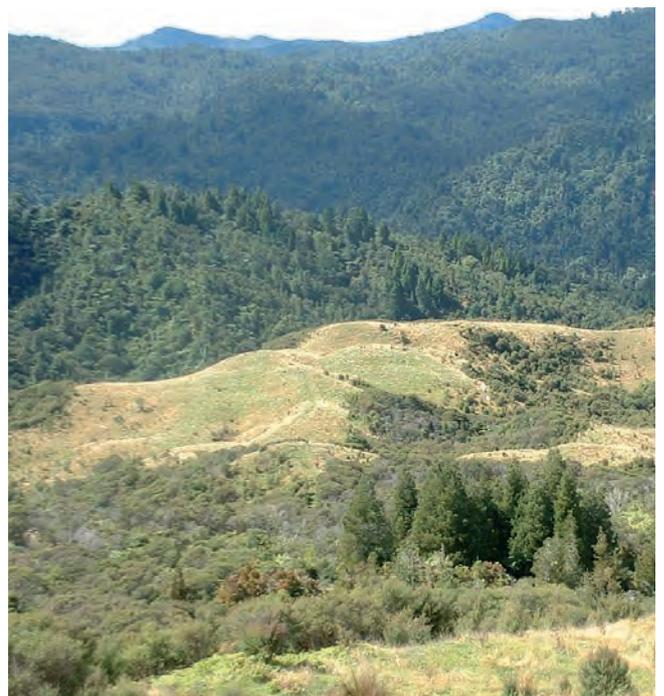
- Semi-coastal broadleaf forest on better drained gentle slopes closer to the coast, with a canopy of pūriri, kohekohe, tītoki, karaka and kōwhai. Taraire also occurs in the canopy in the northern parts of the peninsula (mainly in the Colville ecological district).
- Conifer forest on the flat, poorly 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](http://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), horoeka (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.

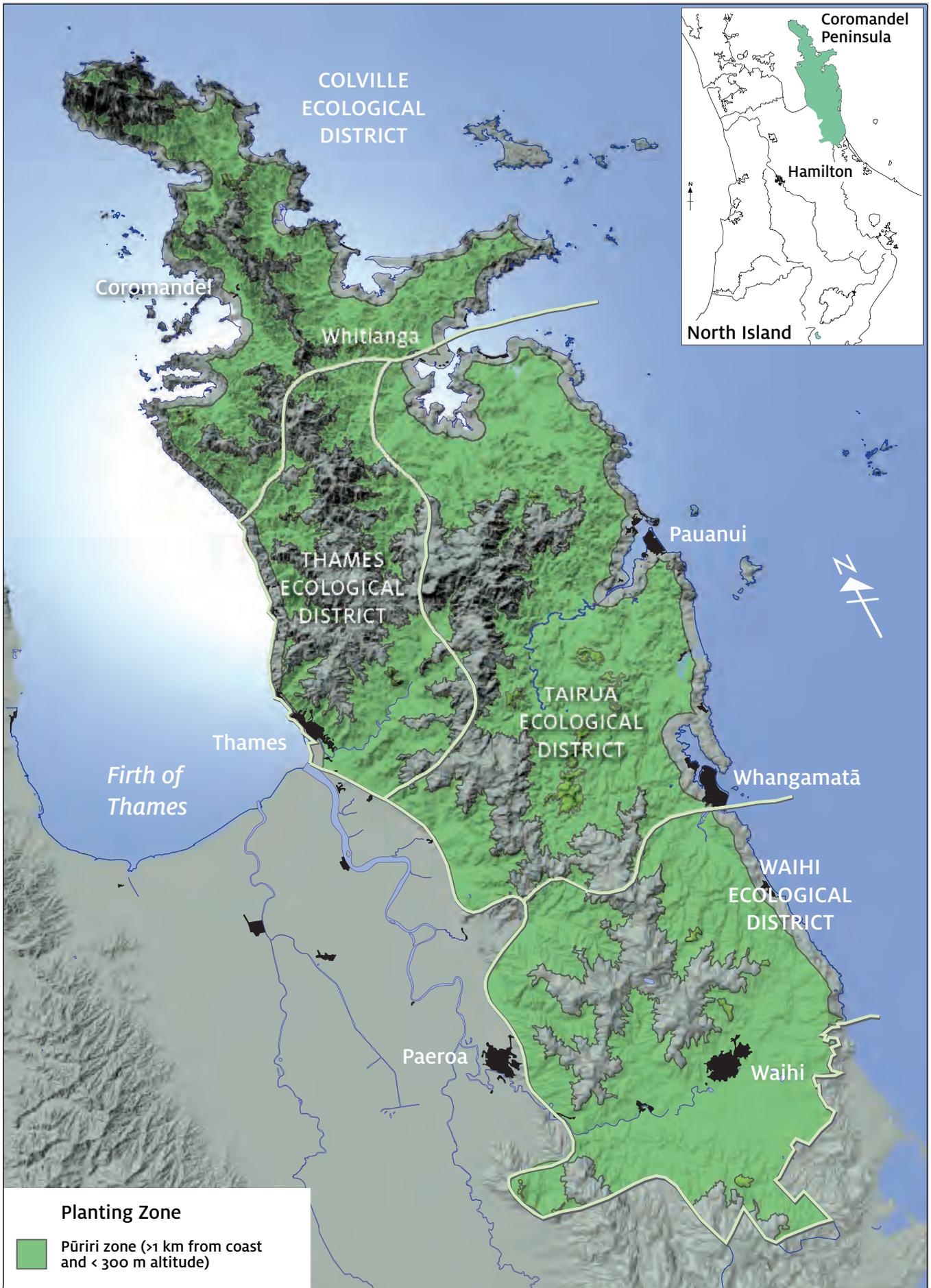
Visit our website for planting guides:  
[waikatoregion.govt.nz/biodiversity](http://waikatoregion.govt.nz/biodiversity)

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
Tītoki	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

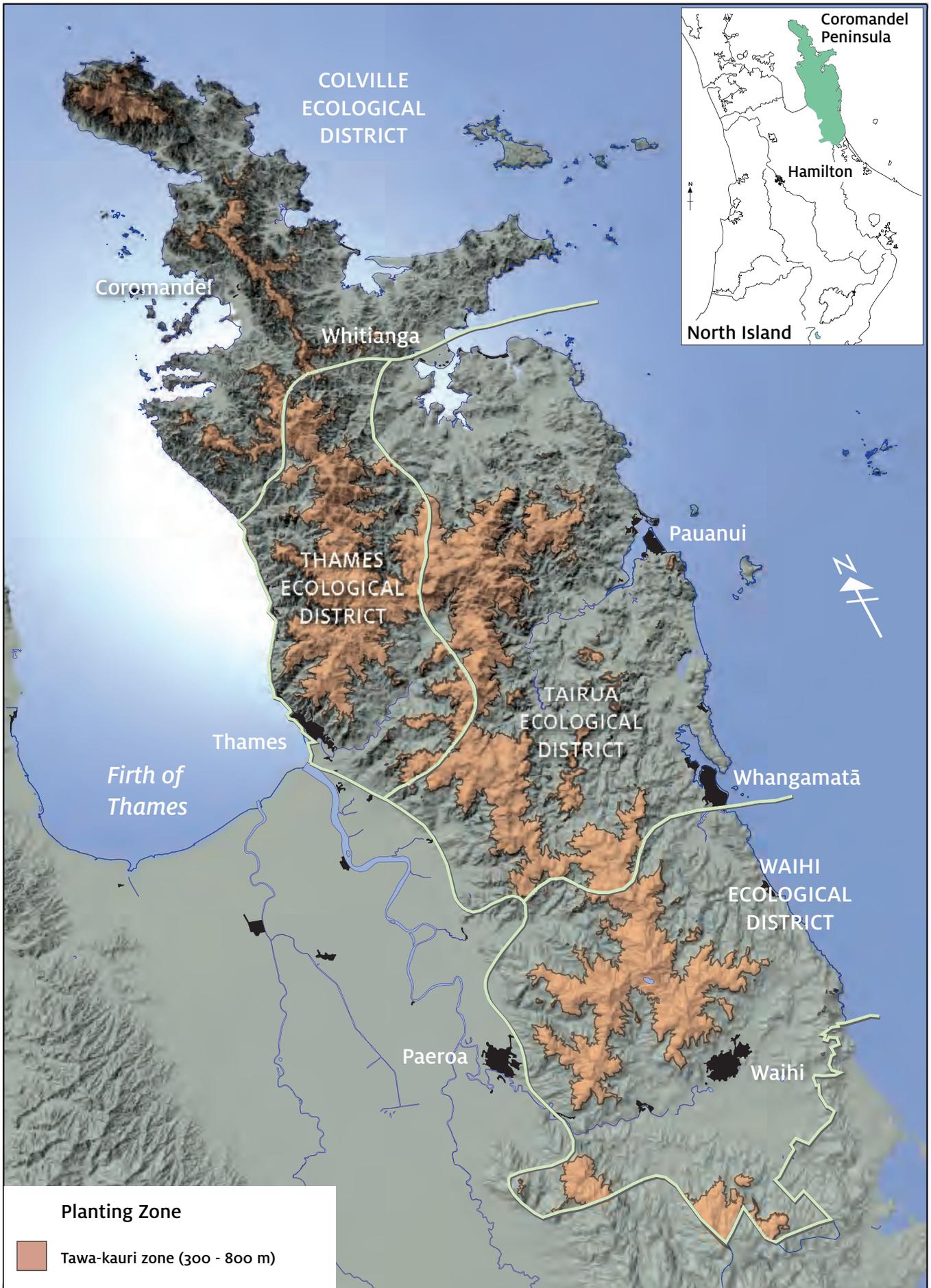
If you don't wish to replant an area of forest, consider the following plants to help enrich this zone. Use them in your garden or in fenced off streamside areas, shelterbelts, and for stock shade trees.

For further information refer to 'Planting native trees in the Waikato region', [waikatoregion.govt.nz](http://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.

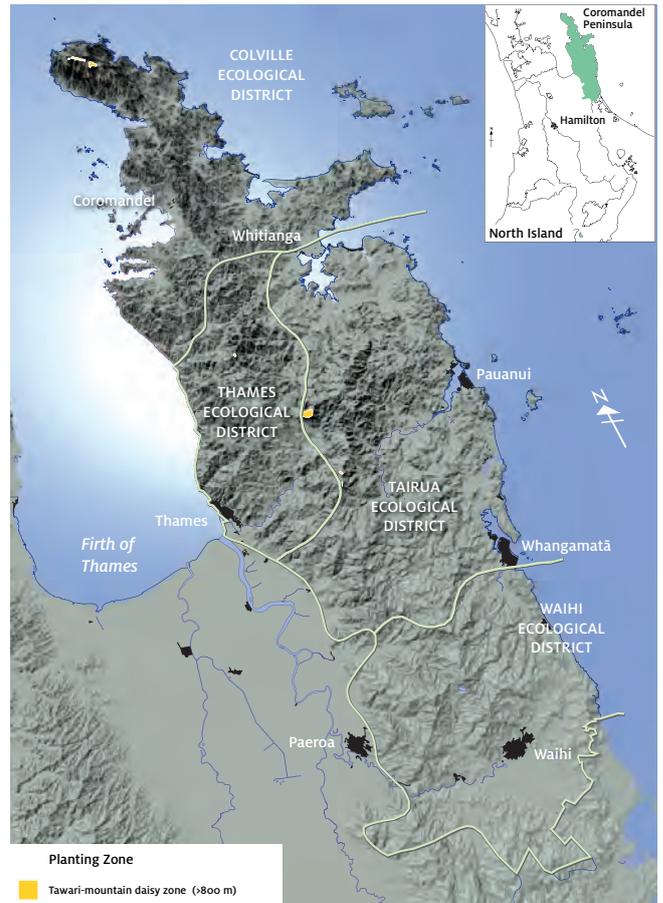
Altitudes in this zone are above 800m. The landform and soils often consist of rocky, exposed peanks, or poorly drained, low fertility plateaus. The entire zone is currently in native forest.

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.

