



What to plant in Maungatautari ecological district

Planting local native trees to preserve our natural heritage and promote our community identity.

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About this guide

The Maungatautari Ecological Island will fill the surrounding district with native birds, many of which have been absent from the area for decades. With the right plants, you can encourage these birds to visit your property.

This guide will help you select and plant local native plants for your gardens, re-vegetation areas, or as specimen or shelter trees for your farm.

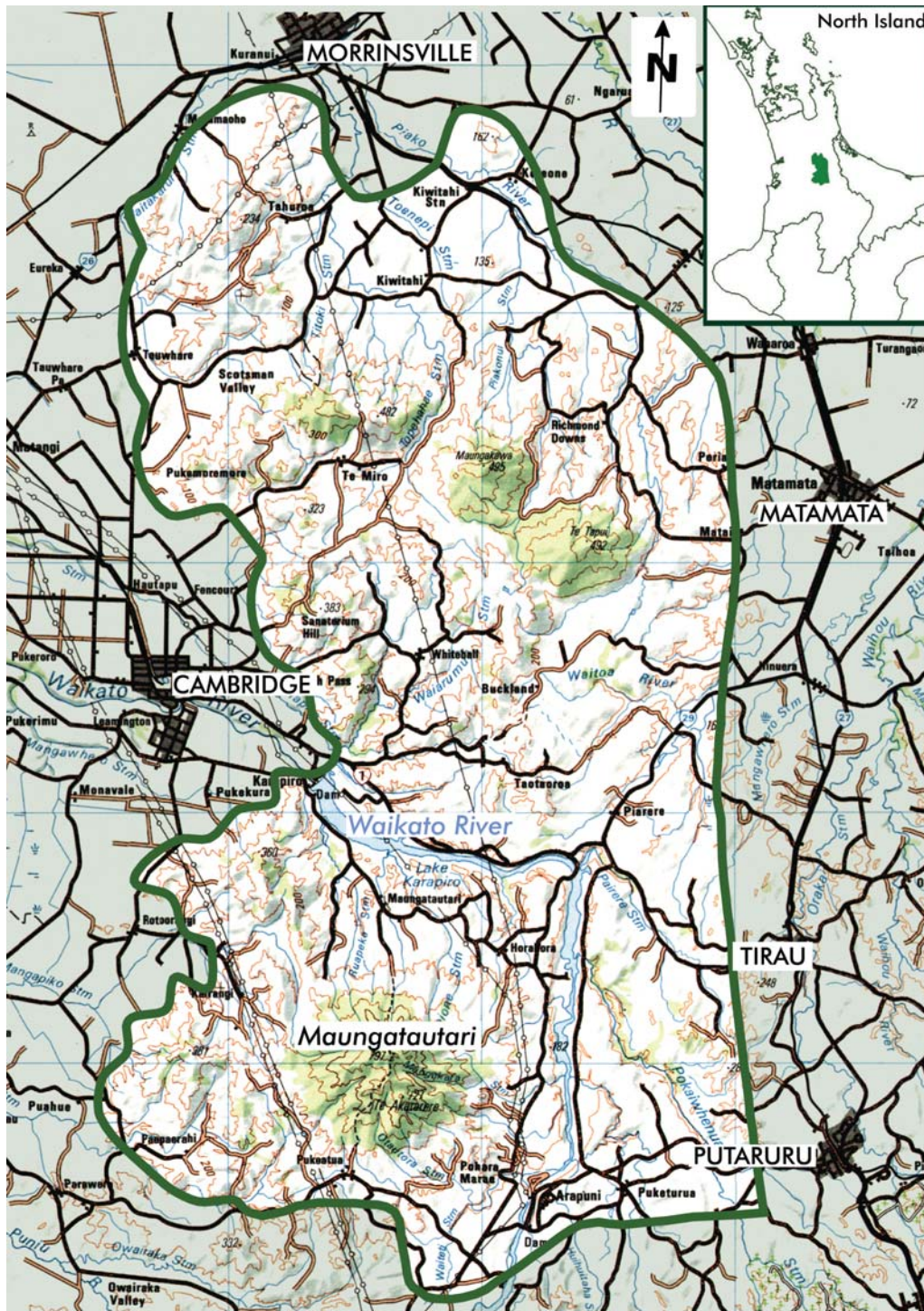
The focus of this planting guide is on forest species. For ideas on what to plant in wetlands contact Environment Waikato for a copy of the "Wetland Management" series of factsheets or see www.ew.govt.nz/water



This guide is for the hilly land of Tahuna, Scottsman's Valley, Richmond Downs, Te Miro, Whitehall, Horahora and Maungatautari, and the lowlands of Piarere, Karapiro, Tauwhare and Kiwitahi.

The lowlands of Cambridge, Morrinsville, Matamata, Tirau and Te Awamutu are outside the Maungatautari ecological district, however the plants will be similar. If you wish to plant in those towns use the plants in the lowland terraces planting zone list.

If you live in Hamilton do not use this guide, use the Hamilton Gully Guide (contact Hamilton City Council for a copy).



Maungatautari ecological district.

The Maungatautari ecological district

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.

Maungatautari ecological district (87,041 hectares), has a particular combination of landform, vegetation and climate we can claim as our own and which brands us differently from the rest of the country.

Description of Maungatautari ecological district

Maungatautari ecological district (MED) is located in the Waikato basin. It is the hilly country surrounded by the lowland townships of Cambridge, Morrinsville, Tirau and Matamata.

The formation of the land and vegetation has been greatly influenced by faulting and historic volcanic activity, and the evolution of the Waikato River system.

The topography of the district is varied. It includes:

- the high, rugged volcanic cone of Maungatautari, (797 m) in the south
- the three smaller (< 500 m) remnant cones, Te Tapui, Maungakawa and Maungatapu in the north
- a block of low rolling hills in the north-west
- the low terrace land and flood plains adjacent to the existing Waikato River channel and its former course through the Piarere Valley at Hinuera.

Each of these areas has different factors that influence the range of plant species and associations that naturally occur - soil type, slope, drainage, rainfall pattern and temperature range all combine to create distinctive vegetation zones from sub-montane to lowland forests, wetlands and riparian areas. Each plant has a different tolerance to these various conditions, whether it is frost, wind or water logging, making some species more suitable than others.



Vegetation in Maungatautari ecological district

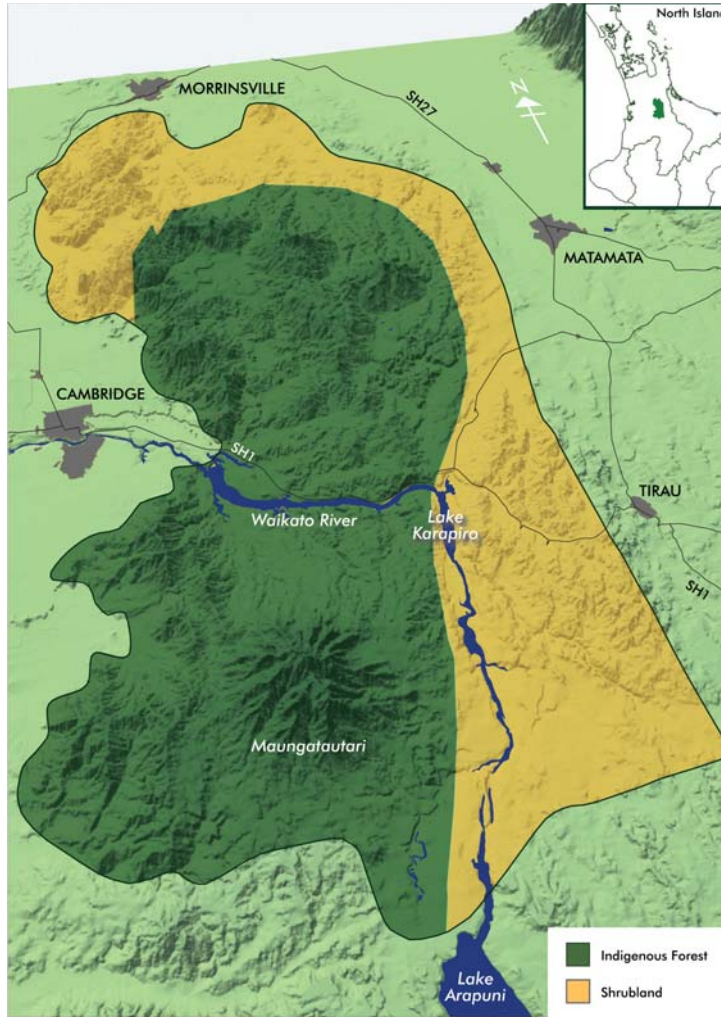
Originally the district was covered in native vegetation, mainly forest of three types:

- Dense conifer (kahikatea or totara) forest on the flat to gently sloping river terraces.
- Rimu-tawa forest on the lower altitude hill country.
- Lowland steepland and montane conifer/broadleaved forest in the higher hill country and mountains.

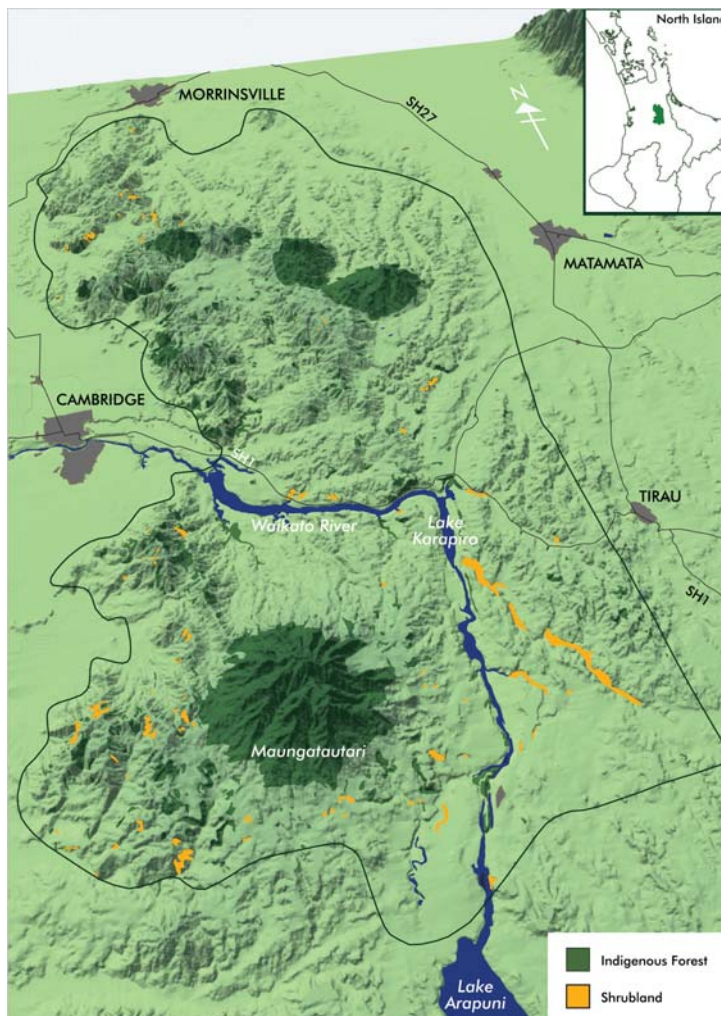


These forests provided habitat for native animals including weka, takahe, kiwi, kakapo, kokako, kaka, saddleback, North Island robin, three species of bat, several species of frog, tuatara and many different geckos and skinks.

Today, the Maungatautari ecological district has less than 10 per cent of the original indigenous vegetation remaining. Half of that is old growth forest and half is regrowth forest (previously cleared). Most of the native forest is in large protected reserves such as Maungatautari and Te Tapui, with a smaller amount in private ownership, including many small patches dotted throughout the district. There are also small areas of wetland in seepages and beside streams. Only a limited range of native animals is now found in the district.



Native vegetation cover in 1840.



Native vegetation cover today.

What is special about our ecological district?

Special community project

Maungatautari is a 1.8 million year old volcano in the southern part of the district. The mountain and surrounding forested landscape once supported a rich native flora with giant northern rata, miro and many other species providing a year-round food source for a variety of wildlife including kiwi, little bush moa, laughing owl and tuatara. Kokako were on Maungatautari as recently as the late 1970s.

The mountain peak is still clothed in 3363 ha of forest vegetation, but is now surrounded by pastoral farmland with small forest fragments scattered through the district. The lowland winter feeding grounds have largely gone, and after decades of attack by ship rats, possums and other predators, so have many of the native birds.

A major project lead by the local community is underway to restore native flora and fauna to the mountain. Two large areas of the mountain's forest have been surrounded by a predator-proof fence, and all the pests within them eradicated. The community is now raising funds to complete the construction of the fence around the whole mountain. They also plan to return threatened species that have been lost from the district, including kiwi, kokako, tuatara, stitchbird, takahe and kakariki.

Without pests, the population of many native bird species like tui, kereru and kakariki will expand to bursting point, and young birds will migrate out into the surrounding countryside in search of food or new homes. These species will also come down from the mountain to feed in the lowlands during the winter.

This is where your native planting is important, whether it be in your garden or a large restoration area. It will assist in providing vital habitat with food source and nesting opportunities for native birds moving down from the mountain into surrounding towns and forest patches. It will help you enjoy, in your own backyard, the efforts to restore Maungatautari.

Special native wildlife

If you live near Maungatautari mountain, you may get all sorts of wildlife visiting your garden, especially if you help the wildlife move safely by planting 'corridors' and/or by controlling pests. Any flighted forest bird will be likely to cross the predator proof fence occasionally and follow a bushy gully down to a house. But of course they may not do it for long if that area is riddled with rats and possums.



What can you expect over the next few years?

- More visits from **kereru**, **tui** and **bellbirds** as their population grows. Tui already regularly fly 10-20 km from nearby native forest patches on Maungatautari and Maungakawa into Cambridge and other urban areas for winter food. If you wish to provide extra food use sugar water, never honey, in your bird feeders.
- Possible nesting of these birds in local bush areas if good pest control is provided.

What can you expect over the long term?

- If good vegetation corridors are provided species such as **whiteheads, robins, tomtits, riflemen** and **kokako** may be drawn down from the mountain to visit, some of these may even breed if suitable habitat is there for them.
- The cheeky native parrots, **kaka** and **kakariki** won't need continuous bushy corridors, but will need patches of bush with plentiful food trees which they can visit. They may nest in the holes of large old trees, even exotic species like macrocarpa. If you notice a nest in an isolated tree, put a 50 cm deep metal band around the trunk (2 m off the ground) to keep rats and stoats away from the nest hole.
- Small populations of other species will establish on the mountain and may be seen or heard through the district:
 - **brown teal** will feed on invertebrates in surrounding farmland at night
 - **long tailed cuckoos** and **Cook's petrels** will be heard and may be seen flying overhead
 - **bush falcon** and **long tailed bats** may become more common
 - **spotless crakes** and/or **banded rails** and perhaps **fernbirds** may become established in the forest with the control of pest mammals.
- Pacific, forest and green **geckos** will probably become more common in surrounding areas with pest control, as well as an increase in the number of **copper skinks** which are already present in surrounding farmland.



Pest mammals, especially ship rats 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. See www.ew.govt.nz for more information.

Special plants

About 130 plant species native to the Waikato region are at risk of extinction. Planting threatened species will help ensure their survival.

Some threatened species that you may like to try establishing include:

Marattia salicina (kingfern)

Microsorium novae-zelandiae

Mida salicifolia

Pimelea tomentosa

Pseudopanax laetus

Raukawa edgerleyi

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.

Do not remove threatened plants from the wild.

Planting guide

What should I plant?

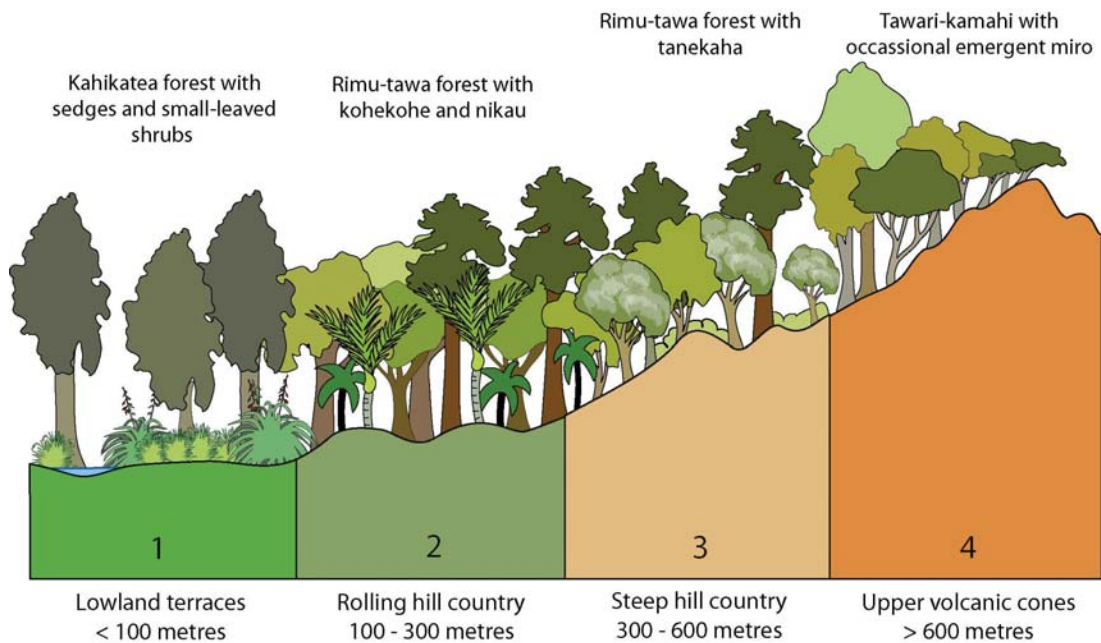
In this guide we describe four separate zones, representing the different vegetation types that would have historically clothed the land.

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

A list of plants that are best suited to each site is included, separated into planting sequences. These provide a list of trees, shrubs and climbers that grow naturally in Maungatautari ecological district.



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 help determine which zone you are in.



Planting zones - plant the right species for your zone

Plants to avoid

There are a number of native plants that do not naturally occur in the Maungatautari ecological district. 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 lack genetic diversity and do not occur naturally.

Some examples of non-local species are:

kauri, *Agathis australis*
native beech, *Nothofagus spp*

pohutukawa, *Metrosideros excelsa*
puriri, *Vitex lucens*

We do not include any non-native plants in this guide. While some exotic plants are popular food sources for native birds they can become problem weeds. For example flowering cherry (*Prunus campanula*) is beginning to invade natural areas in the district.

Where can I find quality plants?

You can grow your own plants, transplant self-seeded ones (not garden escapees) that are unwanted (for example, under pine forests or along fencelines), or buy them from a reputable native plant nursery. See the factsheet "Planting natives in the Waikato region" for more information on growing, collecting, buying and planting native plants.

Here are some native plant nurseries that may have plants sourced from Maungatautari ecological district. Ask for eco-sourced plants (those collected from local naturally occurring native plants). 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. Ask permission from the landowners before collecting seed or forest litter.

Local community nurseries

Lesley Fitzgerald and Jenny Oliphant
Pokaiwhenua Tree Farm
530 Arapuni Rd
RD1
Putaruru
(07) 883 5763

Peter Morris
Matangi
(07) 829 5763

Commercial nurseries

Full Boom Flora Nurseries Ltd
524 Morrinsville Rd
Hamilton
(07) 856 4515

Hamilton Nurseries Ltd
Trading as Cambridge Nurseries Ltd
183 Maungatautari Rd
Cambridge
(07) 827 4105

Naturally Native NZ Plants
30 Gamman Mill Rd
RD3, Tauranga
0800 334 456

Taupo Native Plant Nursery
PO Box 437, Taupo
(07) 378 5450

Annton Nursery
Hamilton Road
Cambridge
(07) 827 4144

Plan ahead!

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).

1. Lowland terraces (<100m)

This zone is predominantly in the north of the district, around Kiwitahi, with a narrow band extending around the eastern perimeter through the Piarere valley to Lake Karapiro, and along the Waikato River terraces from Arapuni to Cambridge.

The land is flat or gently sloping lowland terraces below 100m altitude. The alluvial soils have low natural fertility and tend to be boggy in low-lying areas.



Typical original vegetation would have been conifer forest and swamps. Kahikatea and pukatea were the dominant forest trees on boggy floodplains. On wet ground common understorey and ground layer species were swamp maire, kiekie, supplejack and the giant sedge *Gahnia xanthocarpa*.

On drier sites, common understorey and ground layer species were small leaved trees and shrubs like kaikomako and turepo. On higher ground totara, matai and rimu were more abundant. For best results, plant the species appropriate to the drainage conditions of your site - wetlands in very wet sites, kahikatea on seasonally flooded areas and rimu-totara on drier slopes.

A number of these remnants are visible from SH 29 through the Piarere Valley.

1a) Flat, damp areas

Kahikatea trees can be planted in the open except in very frosty areas. They will reach 2 m in 3-5 years, but do not develop a closed canopy for decades. To deter weeds you may wish to densely plant with flax or native sedges (for example, *Carex secta*). Plant mostly kahikatea trees at distances from 1-5 m apart (vary the distances to achieve a natural pattern). Plant a few other tree species on drier sites and around the edges, including matai, rimu and totara. Cabbage trees and sedges like pukio can be planted in wet depressions (build 30 cm high mounds to plant into).

After about three years, interplant with shrubs. Plant mostly thin leaved coprosma, round-leaved coprosma, kaikomako, poataniwha, small-flowered mahoe, turepo, and a few mahoe, pate, putaputaweta and hangehange. Ferns and treeferns should arrive on their own. If you have very wet depressions you can plant pukatea and swamp maire. Plant a few black maire and pokaka around the edges.

In very wet sites use Environment Waikato's wetland planting guide (contact 0800 BIODIV or visit www.ew.govt.nz).

1b) Rolling hills and dry river banks

Mixed conifer forest can also be planted directly, as totara and rimu can be planted in the open. This forest type should be more mixed than the kahikatea forest.

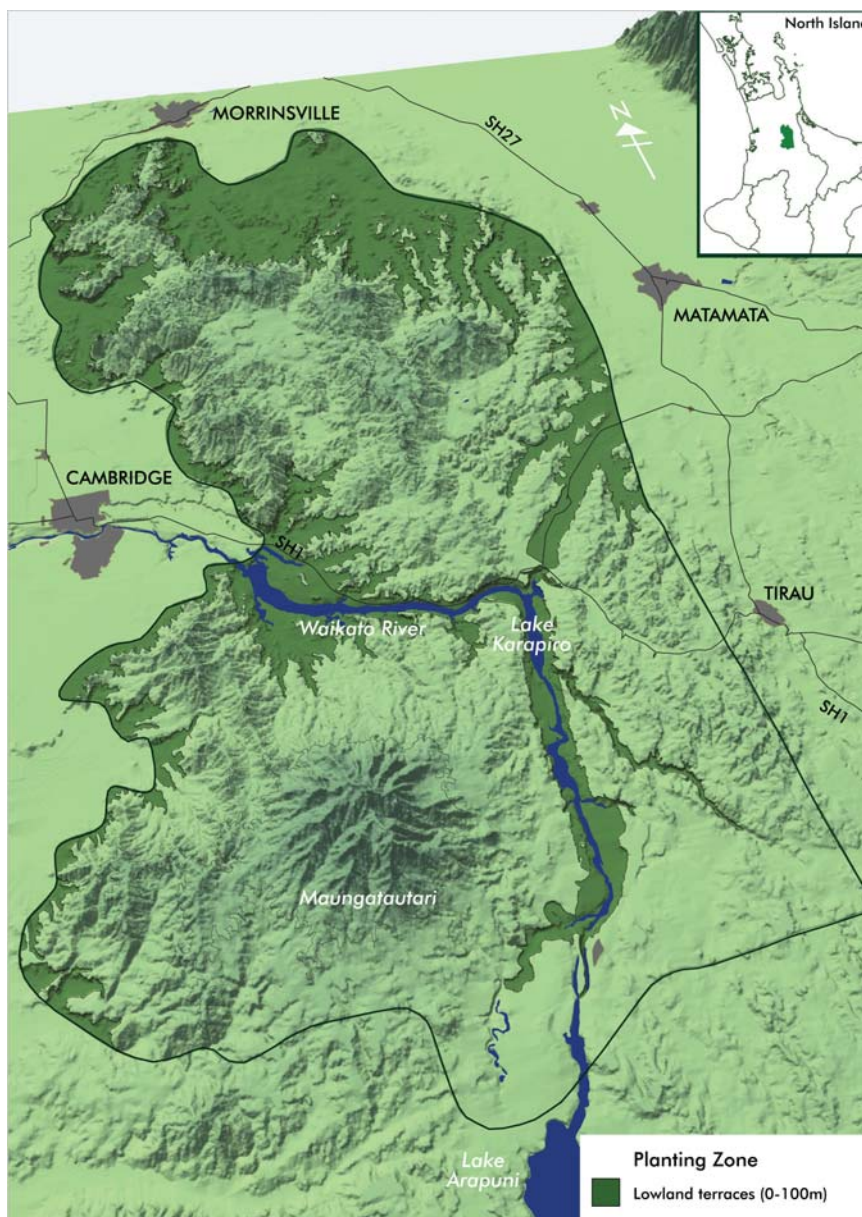
Plant a mixture of totara, matai and a few rimu, with kanuka and mapou in the first few years. Space the bigger trees about 5-10 m apart, with kanuka and mapou in between at 2-3 m. After three years, interplant with lots of bigger leaved plants like mahoe, kawakawa and hangehange. When the canopy is well over-head and closed-in, plant tawa, pate, titoki and pukatea (in wetter sites). Plant mostly totara on dry river terraces, with tree fuchsia, kowhai, titoki and lowland ribbonwood (manatu) along river banks.

1c) 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 fenced off streamside areas, shelterbelts and for stock shade trees.

Large trees	Small trees	Shrubs
Kahikatea	Cabbage tree	Flax
Totara	Poataniwha	Swamp astelia
Rimu	Turepo (milk tree)	Thin-leaved coprosma
Pukatea	Mahoe	Round-leaved coprosma
Pokaka	Mapou	Karamu
Matai	Kowhai	

See the district plant list at the end of this document for more species to plant in this zone



Lowland terraces planting zone

2. Rolling hill country (100-300m)

This is the largest zone in the ecological district. It includes the rural districts of Pukemoremore, Richmond Downs, Te Miro, Whitehall, Maungatautari, Horahora, Kairangi and Puketurua.

The land is low, rolling hill country from 100-300 m, with moderate to steep slopes. The soils, formed from volcanic ash, have low to moderate natural fertility and are generally well-drained. The climate is generally mild, and summer drought may be a problem, so plant frost-hardy plants in autumn.



Rimu-tawa forest was the typical vegetation in this zone. Rimu, miro, totara and northern rata emerged over a canopy dominated by tawa with mangeao, rewarewa, titoki, pukatea, hinau and kohekohe. The understorey was thick with a variety of small trees, shrubs, vines, ferns and grasses such as kawakawa, mahoe, pigeonwood, passion vine, nikau, silver fern and the ground lily *Astelia fragrans*.

Remaining examples of this vegetation type include Junction Scenic Reserve, the lower slopes of Te Tapui Scenic Reserve and Sanatorium Hill. A good example of natural regeneration can be seen at the Waterworks site on Waterworks Road.

This zone can be further separated according to topography - ridges and spurs, slopes, gullies and bush edges. The species list at the end of this document identifies where each plant would naturally occur. For best results plant the species appropriate to the topographic position of your site.

These forest types are usually best established through a dense nurse crop of tea-tree and hardy shrubs. Plant scattered rimu, miro, totara and rewarewa (5-10 m apart) among closely planted manuka, mapou and mingimingi. Plant mahoe, pigeonwood, kawakawa, kanono, hangehange, mangeo, titoki, pukatea and silver fern after 3 years. Plant tawa, kohekohe and nikau much later, under overhead, dense canopy (10-15 years). Plant mostly tawa, mangeao and kohekohe (about 5-10 m apart), with pukatea in wet gullies and scattered titoki on slopes. Plant nikau, kawakawa and hangehange densely (1-2 m spacing).

2a) Ridges and spurs

These should be planted with mostly small or tough-leaved plants like rimu, totara, rewarewa and occasional rangiora, heketara, miro and tanekaha. Understorey plants would include mingimingi, and the lily *Astelia fragrans* on the ground.

2b) Slopes

Slopes should eventually have a canopy of mostly tawa, mangeo and kohekohe (spaced about 5-10 m apart) over a dense understorey of silver fern, kawakawa, hangehange, nikau, kanono and mahoe. Plant occasional rewarewa, rimu, five-finger (whauwhaupaku) and rangiora.

2c) Gullies

Wet gullies should have pukatea and occasional kahikatea (planted just upslope from streams), with lots of pate, parataniwha, mamaku, wheki, nikau and occasional putaputaweta, cabbage trees and tree fuchsia (on well-lit stream banks).

2d) Bush edges

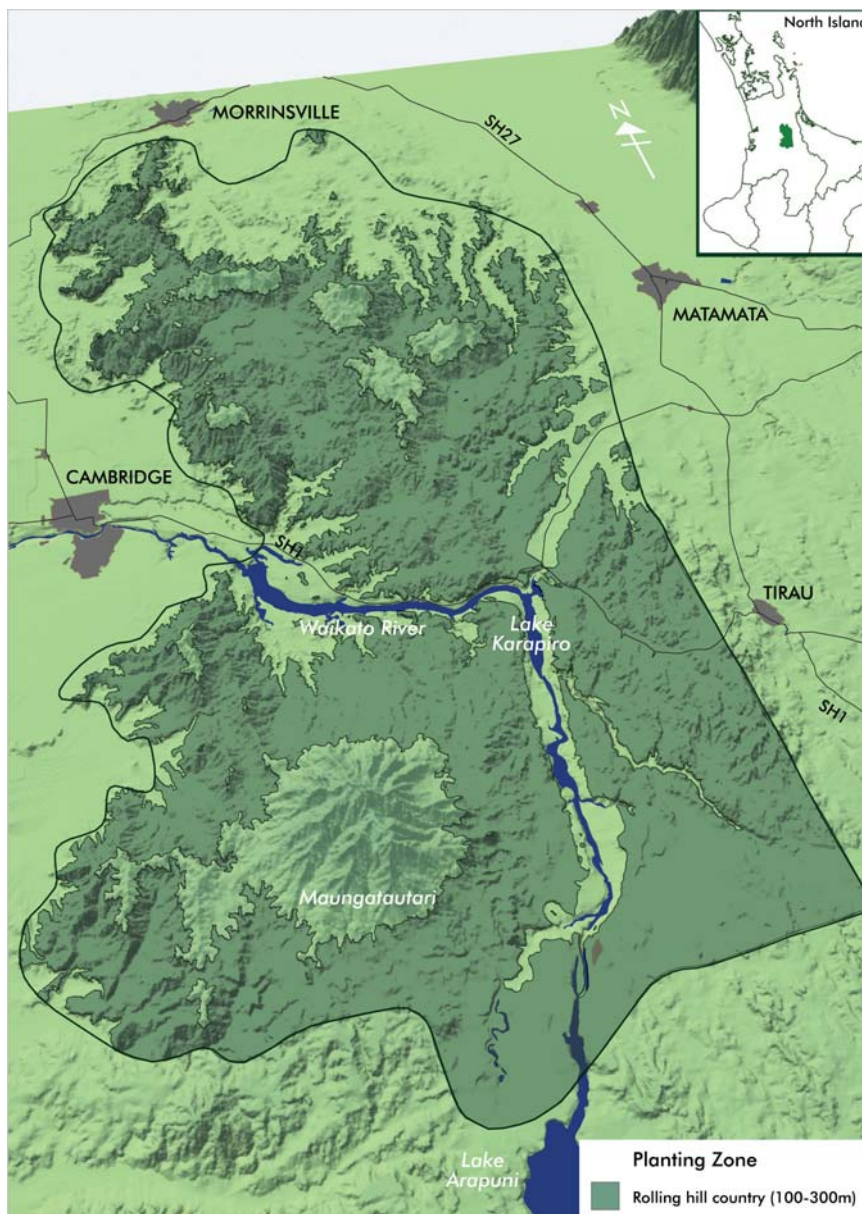
Plant light-tolerant shrub species including manuka, koromiko, five-finger (whauwhaupauku), rangiora, lacebark and wineberry.

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 fenced off streamside areas, shelterbelts and for stock shade trees.

Large trees	Small trees	Shrubs
Rimu	Cabbage tree	Koromiko
Totara	Lancewood	Kawakawa
Kamahi	Five-finger	Mapou
Pukatea	Mahoe	Rangiora
Miro		Karamu
Titoki		

See the district plant list at the end of this document for more species to plant in this zone.



Rolling hill country planting zone

3. Steep hill country and lower volcanic cones (300-600m)

This zone is restricted to the peaks of the three volcanic cones in the north of the district, the hill country off Oliver and Redoubt roads and the foothills to the south-west of Maungatautari.

The land is steep to rolling hill country from 300-600 m, and exposed to moderate and severe winds. The soils are generally well-drained, formed either from greywacke or volcanic rocks, with low natural fertility.



Rimu-tawa forest would have been the dominant vegetation in this zone (see zone 2 description for tips on planting rimu-tawa forest), however it would have included canopy species such as tanekaha on ridges, and a greater presence of understorey species such as heketara, rangiora and lowland horopito. Species such as kohekohe and nikau would have been absent from much of this higher altitude zone.

There are good intact examples of this vegetation type on the lower slopes of Maungatautari Mountain Scenic Reserve, and the upper peaks of Te Miro and Te Tapui scenic reserves.

3a) Ridges and spurs

These should be planted with mostly small-leaved or tough-leaved plants like rimu, totara, rewarewa, kamahi, heketara, rangiora and occasional tanekaha and toropapa.

3b) Slopes

Slopes should eventually have a canopy of mostly tawa, kamahi, mangeo and hinau (spaced about 5-10 m apart) over a dense understorey of ponga (silver fern), kawakawa, hangehange, kanono and mahoe. Plant occasional rewarewa, rimu, miro, five-finger (whauwhaupaku), pigeonwood, heketara and rangiora.

3c) Gullies

Wet gullies should have pukatea and occasional kahikatea (planted just upslope from streams), with pate, parataniwha, mamaku, wheki and gully fern.

3d) Bush edges

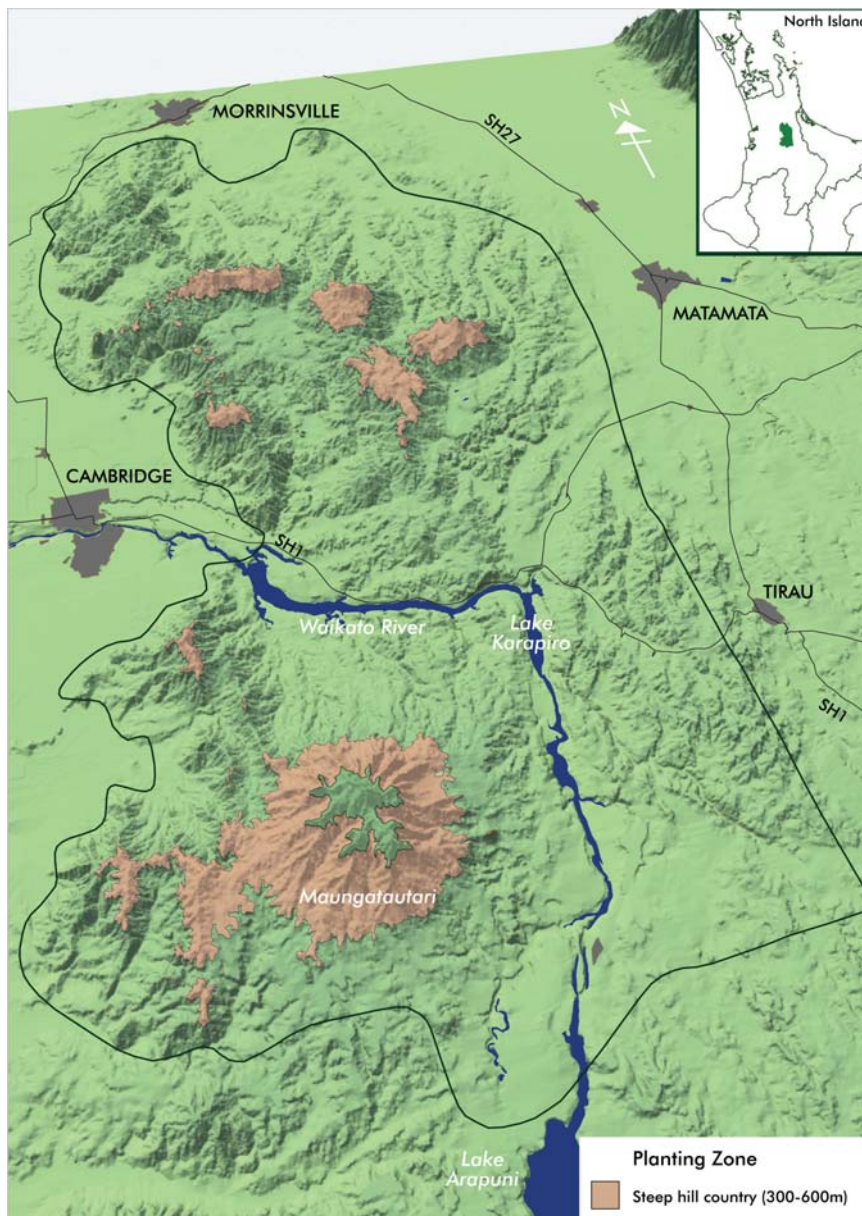
Plant light-tolerant species including manuka, koromiko, rangiora, wineberry and lacebark.

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 fenced off streamside areas, shelterbelts and for stock shade trees.

Large trees	Small trees	Shrubs
Rimu	Cabbage tree	Rangiora
Totara	Lancewood	Karamu
Kamahi	Five-finger	Mapou
Pukatea	Mahoe	Heketara
Miro	Hinau	Tauhinu
Rewarewa		Horopito

See the district plant list at the end of this document for more species to plant in this zone.



Steep hill country planting zone

4. Upper volcanic cones (> 600m)

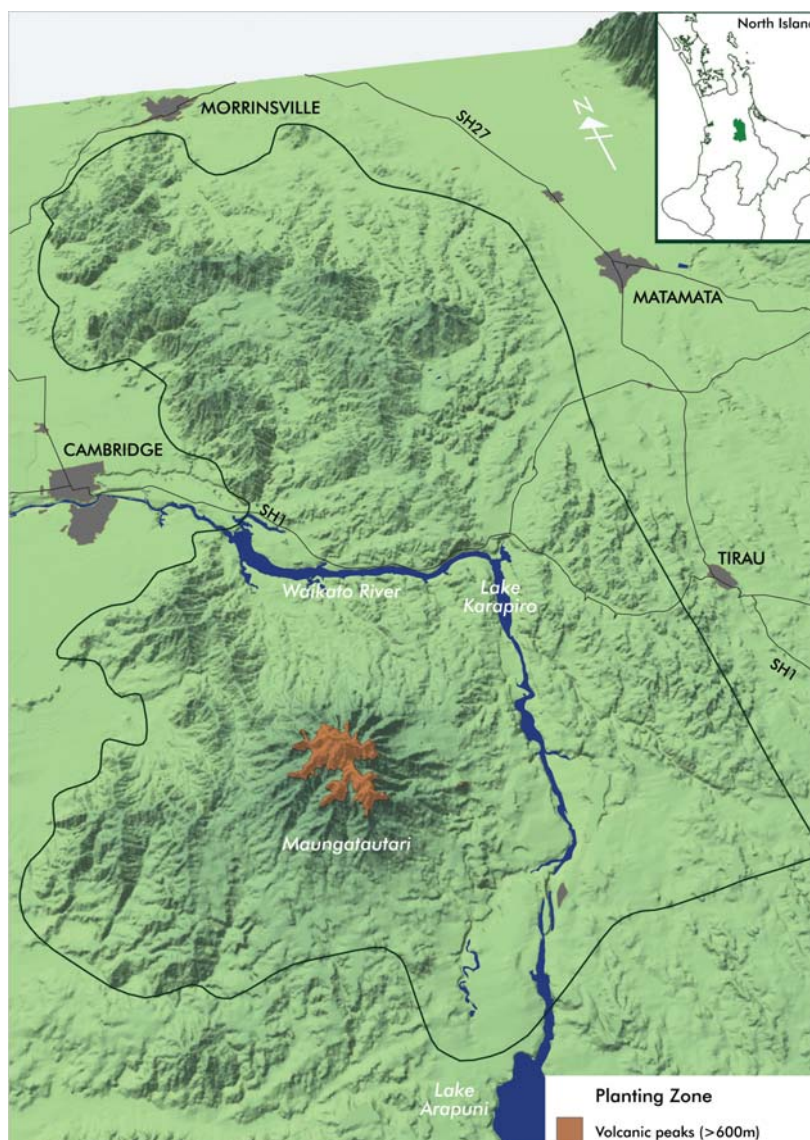
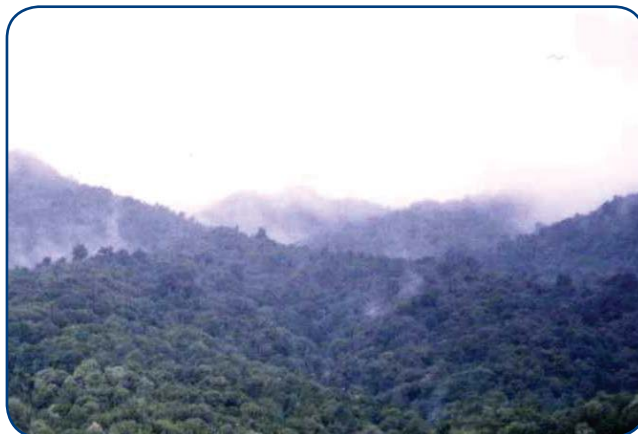
This zone is restricted to the top of Maungatautari mountain, including its three peaks, each above 700 m.

Altitudes in this zone are above 600 m, and the landform is steep and rugged. Soils are volcanic (formed from rhyolitic ash) and of very low fertility but well-drained. The entire zone is in native forest.

Vegetation is sub-montane conifer/broadleaf forest, with a low canopy layer of tawari, kamahi, toro and tawheowheo, kapuka and occasional emergent miro and Hall's totara.

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 planting list at the end of this document.

Find out more about Maungatautari mountain and the plans to restore it at:
www.maungatrust.org



Volcanic peaks planting zone

Plant list for Maungatautari ecological district

Use the zone map (on page 7) and descriptions (pages 10-16) to find out which colour zone your property is in. **Look for plants with your zone colour.** Plant in proportions indicated on your zone band for each species (for example, plant mostly species with “most”, a few scattered plants with “least”). This is a detailed list of species that grow naturally in the area, and some may be difficult to source. To see pictures of these try Google Image search on the internet or look for books on native plants at your local bookstore or library.

Where are you planting?	List	Action
Are you planting into a bare area exposed to frost, wind or sun?	Go to List 1	Plant dense clumps of trees, shrubs and 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	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	You can also plant most of the species in List 1 and 2 under existing canopy (except plants like manuka and kanuka that need high light levels). Plants in Lists 1 and 2 will probably grow better where the light levels are higher, for example near bush edges and in canopy gaps. This list includes plants that are epiphytes, that should be grown on existing trees. Note that many ferns may turn up on their own.

1. Plant in the open (Years 1-3)

Common names	Botanical name	Plant type	Notes	Zone 1/ abundance	Zone 2/ abundance	Zone 3/ abundance	Zone 4/ abundance
Cabbage tree (mountain) / toi	<i>Cordyline indivisa</i>	Sm tree					Least
Cabbage tree/ ti kouka	<i>Cordyline australis</i>	Tree		Common	Common	Few	
Cutty grass	<i>Gahnia pauciflora</i>	Sedge				Few	
Fivefinger (mountain)	<i>Pseudopanax colensoi</i>	Shrub				Few	Few
Fivefinger/ whauwhaupaku	<i>Pseudopanax arboreus</i>	Sm tree			Common	Common	
Flax / harakeke	<i>Phormium tenax</i>	Herb		Most	Few		
Sedge (giant)	<i>Gahnia xanthocarpa</i>	Sedge		Least			
Heketara / forest tree daisy	<i>Olearia rani</i>	Sm tree			Few	Common	
Kahikatea / white pine	<i>Dacrycarpus dacrydioides</i>	Tree		Most	Common	Few	
Kaikomako	<i>Pennantia corymbosa</i>	Tree		Common			
Kanuka	<i>Kunzea ericoides</i>	Tree		Few	Common	Common	
Karamu	<i>Coprosma robusta</i>	Shrub		Few	Most	Most	
Kohuhu	<i>Pittosporum tenuifolium</i>	Tree			Few		
Koromiko	<i>Hebe stricta</i>	Shrub			Few	Few	
Kowhai	<i>Sophora microphylla</i>	Tree		Few			
Lacebark (graceful) / houhere	<i>Hoheria sexstylosa</i>	Sm tree			Few		
Lancewood / horoeka	<i>Pseudopanax crassifolius</i>	Sm tree			Few	Few	
Lemonwood / tarata	<i>Pittosporum eugenioides</i>	Sm tree			Common		
Mahoe (narrow-leaved)	<i>Melicytus lanceolatus</i>	Shrub				Few	Few
Mamangi / tree coprosma	<i>Coprosma arborea</i>	Shrub			Least		
Manuka	<i>Leptospermum scoparium</i>	Sm tree		Most	Common		
Mapou	<i>Myrsine australis</i>	Sm tree		Common	Most	Most	
Marble leaf / putaputaweta	<i>Carpodetus serratus</i>	Sm tree		Least	Few	Least	
Matai	<i>Prumnopitys taxifolia</i>	Tree		Least	Few		
Mikimiki	<i>Coprosma propinqua</i>	Shrub		Few			
Mingimingi	<i>Leucopogon fasciculatus</i>	Shrub			Common	Few	Few
Pokaka	<i>Elaeocarpus hookerianus</i>	Tree		Least			
Ramarama	<i>Lophomyrtus bullata</i>	Shrub		Least	least		
Rangiora	<i>Brachyglottis repanda</i>	Shrub			Common	Most	

Common names	Botanical name	Plant type	Notes	Zone 1/ abundance	Zone 2/ abundance	Zone 3/ abundance	Zone 4/ abundance
Raut whiri	<i>Pittosporum colensoi</i>	Sm tree			Few	Few	Most
Ribbonwood (lowland) / manatu	<i>Plagianthus regius</i>	Sm tree	  	Few			
Rimu	<i>Dacrydium cupressinum</i>	Tree	 	Few	Few	Few	
Sedge / pukio	<i>Carex secta</i>	Sedge		Few			
Sedge / purei	<i>Carex virgata</i>	Sedge		Few			
Snowberry	<i>Gaultheria oppositifolia</i>	Shrub	  				Few
Snowberry	<i>Gaultheria paniculata</i>	Shrub	  				Few
Snowberry (bush)	<i>Gaultheria antipoda</i>	Shrub	  				Few
Swamp astelia	<i>Astelia grandis</i>	Lily	  	Least			
Swamp coprosma	<i>Coprosma tenuicaulis</i>	Shrub	  	Common			
Tauhinu	<i>Pomaderris ericifolia</i>	Shrub				Least	
Toetoe	<i>Cortaderia fulvida</i>	Grass		Common			
Totara (Hall's)	<i>Podocarpus hallii</i>	Tree	 				Few
Totara (lowland)	<i>Podocarpus totara</i>	Tree	    	Common	Few	Few	
Totorowhiti	<i>Dracophyllum strictum</i>	Shrub				Least	Few
Tree fuchsia/ kotukutuku	<i>Fuchsia excorticata</i>	Sm tree	   	Few	Few		
Wineberry / makomako	<i>Aristotelia serrata</i>	Sm tree	    	Few	Common	Few	

Symbols used in species lists

Drainage

 tolerates boggy soil

Growth rate

 Fast
 Medium
 Slow

Topographic position

 Crest or ridge
 Slope
 Gully or foot of slope

Notes

 Potentially difficult to source
 Priority eco-source
 Provides food for birds

2. Plant in sheltered areas or among existing plants (Years 3-10)

Maori / common name	Botanical name	Plant type	Notes	Zone 1 / abundance	Zone 2 / abundance	Zone 3 / abundance	Zone 4 / abundance
Akeake	<i>Dodonea viscosa</i>	Shrub		Least	Least		
Black maire	<i>Nestegis cunninghamii</i>	Tree		Least			
Cabbage tree (forest)	<i>Cordyline banksii</i>	Shrub			Few		
Fern (kiokio)	<i>Blechnum novae-zelandiae</i>	Fern		Few	Few		
Fivefinger	<i>Pseudopanax laetus</i>	Shrub			Least		
Hangehange	<i>Geniostoma rupestre</i>	Shrub		Common	Common	Few	
Horopito (lowland) / pepperwood	<i>Pseudowintera axillaris</i>	Sm tree				Few	
Horopito (mountain) / pepper wood	<i>Pseudowintera colorata</i>	Sm tree					Common
Kamahi	<i>Weinmannia racemosa</i>	Tree			Few	Few	Few
Kanono	<i>Coprosma grandifolia</i>	Shrub		Few	Common	Few	
Kapuka / broadleaf	<i>Griselinia littoralis</i>	Sm tree					Common
Karamu	<i>Coprosma lucida</i>	Shrub			Few		
Karamu (red fruited)	<i>Coprosma rhamnoides</i>	Shrub		Few	Few		
Kawakawa / pepper tree	<i>Macropiper excelsum</i>	Shrub		Common	Most	Most	
Mahoe (small leaved)	<i>Melicytus micranthus</i>	Shrub		Common			
Mahoe / whiteywood	<i>Melicytus ramiflorus</i>	Sm tree		Common	Most	Most	
Mamaku / black ponga	<i>Cyathea medullaris</i>	Tree fern		Common	Common	Common	
Mangeao	<i>Litsea calicaris</i>	Tree			Common	Common	
Miro	<i>Prumnopitys ferruginea</i>	Tree			Few	Least	
Neinei	<i>Dracophyllum latifolium</i>	Shrub					Least
Neinei (mountain)	<i>Dracophyllum traversii</i>	Sm tree					Least
Pate	<i>Schefflera digitata</i>	Shrub		Few	Common	Few	
Pigeonwood / porokaiwhiri	<i>Hedycarya arborea</i>	Sm tree		Few	Common	Few	
Pimelea	<i>Pimelea tomentosa</i>	Shrub				Least	
Poataniwha	<i>Melicope simplex</i>	Shrub		Common			
Ponga / silver fern	<i>Cyathea dealbata</i>	Tree fern		Common	Common	Common	
Poroporo	<i>Solanum aviculare</i>	Shrub		Few	Few		
Puka	<i>Griselinia lucida</i>	Sm tree (epiphyte)			Least	Least	
Pukatea	<i>Laurelia novae-zelandiae</i>	Tree		Few	Common	Few	
Rata vine (crimson)	<i>Metrosideros carminea</i>	Vine				Few	Few
Rewarewa	<i>Knightia excelsa</i>	Tree		Few	Common	Common	Few

Maori / common name	Botanical name	Plant type	Notes	Zone 1/ abundance	Zone 2/ abundance	Zone 3/ abundance	Zone 4/ abundance
Round leaved coprosma	<i>Coprosma rotundifolia</i>	Shrub	 	Few			
Smith's tree fern	<i>Cyathea smithii</i>	Tree	 		Common	Common	
Stinkwood	<i>Coprosma foetidissima</i>	Shrub	  	Few	Least	Least	Least
Tanekaha / celery pine	<i>Phyllocladus trichomanoides</i>	Tree	 		Few	Few	
Tawari	<i>Ixerba brexioides</i>	Sm tree	 				Common
Tawheowheo	<i>Quintinia serrata</i>	Sm tree					Common
Thin leaved coprosma	<i>Coprosma areolata</i>	Shrub	 	Few			
Titoki	<i>Alectryon excelsus</i>	Tree	  	Few	Few	Few	
Toro	<i>Myrsine salicina</i>	Sm tree					Common
Tree nettle / ongaonga	<i>Urtica ferox</i>	Shrub	 	Least	Least		
Tumingi	<i>Epacris pauciflora</i>	Shrub	 			Least	Least
Turepo / milk tree	<i>Streblus heterophyllus</i>	Sm tree	 	Few	Few		
Turutu / blueberry	<i>Dianella nigra</i>	Herb	 	Least	Few	Few	
Wheki / rough tree fern	<i>Dicksonia squarrosa</i>	Tree fern	 	Few	Common	Common	
Wheki ponga	<i>Dicksonia fibrosa</i>	Tree fern	 	Few			
White maire	<i>Nestegis lanceolata</i>	Tree	 		Least		

Symbols used in species lists

Drainage

 tolerates boggy soil

Growth rate



Fast



Medium



Slow

Topographic position



Crest or ridge



Slope



Gully or foot of slope

Notes



Potentially difficult to source



Priority eco-source



Provides food for birds

3. Plant in existing bush areas or under dense canopy (Years 10 +)

Maori / common name	Botanical name	Plant type	Notes	Zone 1/ abundance	Zone 2/ abundance	Zone 3/ abundance	Zone 4/ abundance
Bush lawyer	<i>Rubus australis</i>	Vine		Least	Least	Least	Least
Bush lawyer	<i>Rubus cissoides</i>	Vine			Least	Least	Least
Cabbage tree (dwarf)	<i>Cordyline pumilio</i>	Shrub			Least	Least	
Clematis / pohue	<i>Clematis forsteri</i>	Vine			Least		
Clematis / puawananga	<i>Clematis paniculata</i>	Vine			Least	Least	
Fern	<i>Microsorium novae-zelandiae</i>	Fern (epiphyte)				Least	
Fern (creek) / kiwakiwa	<i>Blechnum fluviatile</i>	Fern			Few	Few	
Fern (drooping spleenwort) / raukatauri	<i>Asplenium flaccidum</i>	Fern (epiphyte)		Few	Common	Few	
Fern (hen & chicken)/ manamana	<i>Asplenium bulbiferum</i>	Fern		Few	Common	Few	
Fern (small kiokio)	<i>Blechnum procerum</i>	Fern					Few
Fern (thread) / panako	<i>Blechnum filiforme</i>	Fern		Few	Common	Few	
Fern / huruhuru whenua	<i>Asplenium oblongifolium</i>	Fern			Common	Common	
Hinau	<i>Elaeocarpus dentatus</i>	Tree			Few	Few	Few
Jasmine / kaihua	<i>Parsonsia heterophylla</i>	Vine		Least	Least	Least	
Jasmine / kaiwhiria	<i>Parsonsia capsularis</i>	Vine		Least	Least	Least	
Kiekie	<i>Freycinetia baueriana</i>	Vine		Least	Few	Few	
King fern / para	<i>Marattia salicina</i>	Fern			Least		
Kohekohe	<i>Dysoxylum spectabile</i>	Tree			Common		
Kohurangi	<i>Brachyglottis kirkii</i>	Shrub (epiphyte)			Least		
Lily (fragrant) / kakaha	<i>Astelia fragrans</i>	Lily			Least	Least	
Lily (perching) / kahakaha	<i>Collospermum hastatum</i>	Lily (epiphyte)		Least	Few	Few	
Lily (perching) / kowharawhara	<i>Astelia solandri</i>	Lily (epiphyte)		Least	Few	Few	
Mida / willow leaved maire	<i>Mida salicifolia</i>	Sm tree			Least		
Nikau	<i>Rhopalostylis sapida</i>	Tree		Least	Common	Few	
Northern rata	<i>Metrosideros robusta</i>	Tree			Few	Few	
NZ iris	<i>Libertia ixioides</i>	Herb				Least	
Passionfruit vine / kohia	<i>Passiflora tetrandra</i>	Vine		Few	Least		
Rata vine (climbing / scarlet)	<i>Metrosideros fulgens</i>	Vine			Few	Few	

Maori / common name	Botanical name	Plant type	Notes	Zone 1/ abundance	Zone 2/ abundance	Zone 3/ abundance	Zone 4/ abundance
Rata vine (small leaved, white) / akatea	<i>Metrosideros perforata</i>	Vine / shrub	   	Least	Least	Least	
Rata vine (white climbing)	<i>Metrosideros diffusa</i>	Vine	   		Few	Few	
Raukawa	<i>Raukawa edgerleyi</i>	Sm tree	  			Least	
Supplejack	<i>Ripogonum scandens</i>	Vine	   	Least	Common	Common	
Swamp maire/ maire tawake	<i>Syzygium maire</i>	Tree	 	Few			
Tawa	<i>Beilschmiedia tawa</i>	Tree	   	Common	Common	Common	
Tawhirikaro	<i>Pittosporum cornifolium</i>	Shrub (epiphyte)	  		Least		
Toropapa	<i>Alseuosmia macrophylla</i>	Shrub	 			Few	Common
Toropapa (oak-leaved)	<i>Alseuosmia quercifolia</i>	Shrub	 			Few	Common

Symbols used in species lists

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 tolerates boggy soil

Growth rate

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Notes

 Potentially difficult to source
 Priority eco-source
 Provides food for birds

Your notes:





