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# PART ONE: *Getting started*

## Introduction

The Taranaki region has three Ecological Regions and five Ecological Districts. Each has slightly different landforms, climate, soils, human history and land use. The native vegetation of each ecological district has uniquely evolved with the differing conditions.

Before human settlement native forest covered almost the entire region, but extensive clearance, logging and development of land for settlement and farming has led to the loss of large areas of indigenous vegetation over the ring plain and coastal terraces. The few remaining fragments and tracts of indigenous vegetation have suffered heavily from the introduction of pest plants and animals. Protecting, enhancing, and creating new areas of indigenous vegetation will ensure the long term sustainability of Taranaki's biodiversity.

*Restoration planting in Taranaki: A guide to the Matemateaonga Ecological District* provides information on restoring and enhancing the indigenous vegetation cover which has been lost from Taranaki. It is the third of a planned series about each of the ecological districts, following the restoration planting guides to Egmont Ecological District (2013) and North Taranaki Ecological District (2016). The guides enable landowners, community groups and practitioners to restore ecosystems by planting native species that best suit their site and conditions.

Your project will require time, effort, money and patience but the rewards are immeasurable!

Native plants provide shelter and food especially for native birds, bats,

fish, lizards and insects and other invertebrates. Each site that is revegetated becomes a stepping stone in the greater Taranaki landscape, eventually reconnecting an essential network for wildlife. Providing a seed source for the area increases the potential for the spread of native plants across a wide swathe of countryside. These plants will protect the soil and water on your land. Best of all, what you plant will become your legacy to the future. At some distant time, not only your children, but their children may stand beneath the trees that are small seedlings now, and thank you for your efforts and foresight.



*Kahikatea, Rotokare Scenic Reserve*

JANET HUNT

# Ecological Regions and Districts of Taranaki

As defined in McEwen, WM (1987 *Ecological Regions and Districts of New Zealand*) Taranaki has three Ecological Regions and five Ecological Districts.

## Taranaki Ecological Region

### Matemateonga Ecological District

(223,400 ha, 43% within Taranaki) is the largest ecological district in the North Island. It is steep and hilly with deeply cut rivers, and extensive tracts of lowland forest. It is sparsely settled with few roads and no large urban areas. The rainforest in Matemateonga district is nationally important for species of native wildlife that require extensive lowland forests. The Whanganui National Park and its river are particularly outstanding.

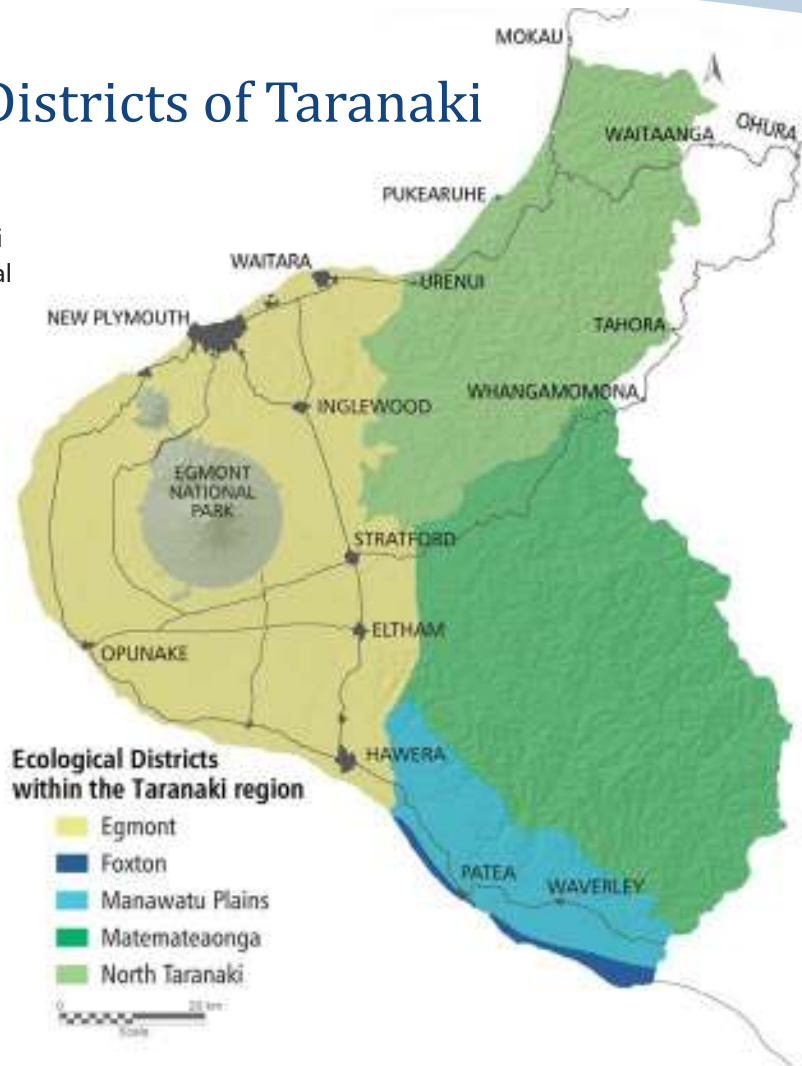
### North Taranaki Ecological District

(166,300 ha, 65% within Taranaki) is hill country that was once almost completely forested. It has a great variety of forest types as well as non-forested coastal communities, estuaries, and freshwater wetlands. It is the southern limit for a number of important plant species such as pohutukawa and karo.

## Egmont Ecological Region

### Egmont Ecological District

(270,300 ha, 100% within Taranaki) includes the mountain, its ring plain, and all the land west of a north-south line from a little west of Urenui in the north to the Tangahoe River east of Hawera in the south. It includes Inglewood, Stratford, Eltham and Hawera as well as Waitara, New Plymouth and Opunake. This district is dominated by Mount Taranaki, the Pouakai and Kaitake Ranges, and the Sugar Loaf Islands. Fertile soils are derived from volcanic material originating from Mount Taranaki. Thirteen percent of the district is inside the Egmont National Park and reserves. Much of the district is devoted to pastoral farming, especially dairying.



## Manawatu Ecological Region

### Foxton Ecological District

(5,500 ha, 5% within Taranaki) is sand country. Its landforms are the result of sand movement, especially in the past. Today sand movement continues but is more restricted by human intervention. Few natural areas now remain. Foxton Ecological District has a long history of major modification and now contains mostly farmland, exotic pine plantations and urban areas.

### Manawatu Plains Ecological District

(56,000 ha, 18% within Taranaki) is distinguished by flat-surfaced flood plains and terraces. Its original forests and wetlands have been largely displaced by farming and urban centres including Palmerston North, Wanganui, Feilding, Marton, Bulls, Waverley and Patea.

# Plan of action

*“Restoration of an ecosystem is an ongoing process, and key forest types cannot be re-created with one initial planting. They are dynamic systems that require enrichment with mid- and late-successional species as they develop.”*

—Professor Bruce Clarkson, Waikato University (2014)

You are about to set out on a journey that may take a number of years. Before you begin, it will be helpful to plan what you intend to do. Think about your site.

What is it like now?

What is your target outcome for this site?

- at the end of this season?
- at the end of next season?
- a couple of years from now?
- 50 years from now?

Look around your neighbourhood, you may see established sites that will give you ideas.

Get maps and aerial photos of the site off Taranaki Regional Council’s Xplorer site.

It may help to make a sketch. Mark boundaries, fences, streams, banks or gullies, mature trees, remnant vegetation and other points of interest. Identify and mark characteristic vegetation zones—there may be a number of different kinds within your site.

You may want to make an overlay sketch to show your planned plantings as well as walkways and other features.

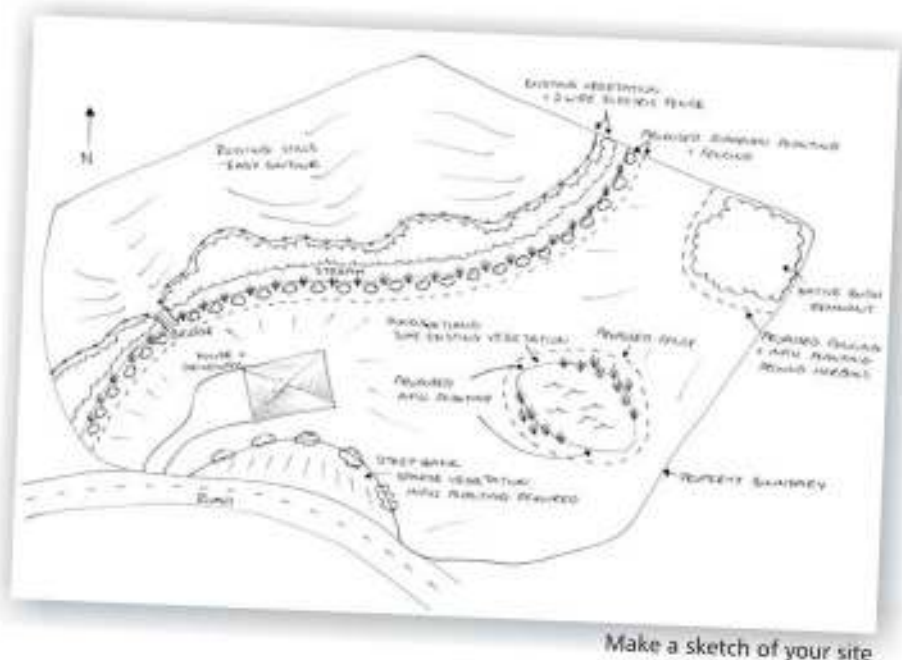
In addition, note:

- What direction does your site face?
- What are the moisture levels? Some parts may be wet or damp, while others are dry.
- Is it exposed to wind/ frost/ salt?
- What parts are sunny? What parts are shady?
- Is it flat or steep? Does it have difficult slopes?
- What kind of soil does it have (such as rocky, stony, silty, clay or peat)?
- Any other information that may be important, such as whether it has been burned or grazed.
- Are there areas of vegetation such as weeds or plantation forests that need to be removed, and when?

## Planting plan

Make a list of plant species for each distinct area choosing the right species for the right place and purpose.

Take into account the habit and requirements of the different species as well as those already on site.



Divide the list into plants that will go in during your first phase of planting and those that will be better planted when protection has been established. Keep your ambitions modest until you know how much you will be able to achieve, and how much time and money it will cost.

Massed and random groups of plants (e.g. groups of three as a minimum) create refuges for wildlife as well as visual interest, and screening if needed. Group plantings also aid pollination.

- Ensure a mix of male and female plants (if applicable).
- A closed canopy will help to exclude weeds.
- Don't forget to allow space for your larger specimens to expand.
- Think carefully about where you plant trees. You don't want them to cause future hazards.
- Food plants for birds will have an added benefit once established because they spread seeds on your behalf.

## Where to get plants?

Find a local native plant nursery to supply your plants. You may need to order some species including rare or threatened plants two years in advance because seed or cuttings have to be collected and the plants grown.

Plants from your own ecological district (eco-sourced) will do better and will continue to preserve the biodiversity of your area. Ask the nursery where the plants came from. A list of potential nurseries is found on page 37.

To learn more about New Zealand flora there are several courses available. A three week block course 'Flora of Aotearoa/New Zealand' is available at the University of Waikato. You could also attend local plant propagation demonstrations at places like the Taranaki Regional Gardens or events run by the Taranaki Environment Centre.

*You can grow your own plants from locally-collected cuttings or seed, or collect and transplant unwanted seedlings such as those that have established along roadsides. Always ask the permission of the landowner, and do not take from reserves or public conservation land.*

## What is eco-sourcing?

Eco-sourcing means getting your plants from seed and cuttings obtained from within, rather than outside, your region. These plants are better adapted to local conditions and are more likely to thrive.

When plants are sourced from different regions, 'genetic pollution' is likely to occur, leading to species loss and a decrease in biodiversity.

It is recommended that you buy plants from nurseries that follow eco-sourcing principles. You not only support the locals but there's less handling, and less cost to you and to the environment.

- Place low ground cover alongside paths.
- Leave selected spaces to look through.
- Plants that are attractive to bees can improve pollination and seed production.



## Preparation

- Fence the area to exclude grazing stock.
- Commence pest animal control e.g. possums, feral goats, pigs, deer, rabbits and hares.
- Identify pest plants and prioritise their control.
- Clear growth for about half a metre radius for each plant, either by hand or by spraying with herbicide\*. The better you prepare the planting site, the greater your success will be. Allow a maximum of two metres between plants to establish a reasonably dense cover.

*\* A herbicide caution!  
Glyphosate will damage any green tissue it touches, especially when wetting agent is used. A lot of damage can occur if Glyphosate is used in release clearing within the first 4-6 years when plant stems are often still green. Glyphosate is also very toxic to aquatic organisms.*

## Planting

- Plant coastal and lowland sites in May or June so plants establish over winter before the summer dry. Plant upland areas in early spring when plants are dormant and have been hardened off by frost. Leave frost-susceptible species as late as possible — until September or October.
- Ensure that your plant is well watered before you begin.
- Dig a hole at least twice the size of the container and break up the soil in the bottom to make a soft bed. Plant more deeply or more shallowly depending on the wetness or dryness of your site.
- Remove your plant from its container and carefully loosen or prune off any entangled roots, keeping disturbance to a minimum. Place it in the hole.
- Depending on the soil, you may want to add a New Zealand-made slow-release fertiliser tablet. Know the fertiliser history of the planting site as some species such as rewarewa and toro can be severely stunted or even killed by soluble phosphates. In very free-draining soils, nutrients placed below the root ball can be lost by soil water movement. In these situations it may be better to place the fertiliser about 10 cm away from the root ball on the uphill side if planting on a slope. This will ensure that soil water movement will move the dissolved nutrients past the plants' roots as part of natural soil drainage.
- At sites where the soils are well drained and exposed, such as coastal sands, plants can be planted deep so that the top of the rootball is at twice its original depth. This ensures more stability and access to moisture over a longer period in dry weather.
- Replace the soil and pull the seedling up about 5 cm.
- Taller plants may require staking, especially if they are in an exposed location.
- If your site is exposed, create a barrier to protect plants on the edges from wind or salt.
- Mulch with bark chips, newspaper, woollen mats, sheep manure, cut grass, old hay or other biodegradable material. Be careful with animal manure because it can bring in weeds. Mulching preserves moisture, slows drying and also retards the advance of weeds. Always consider on-site mulch resources first as they are cheap, on-hand and don't require cartage.
- A bamboo stick or 25 mm x 25 mm stake, flag or marker beside each plant will help you locate your plants at a later date, especially if grasses have taken over! Try painting the top with fluoro paint.

Many nurseries sell New Zealand-made slow-release fertiliser tablets containing nitrogen, phosphorus, magnesium, potassium, sulphur, calcium and trace elements. The tablets slowly release nutrients over two to three years.

You place one in the hole, cover it with a little earth and insert your plant.

They can be obtained from many suppliers including farm supply stores, nurseries and garden centres.

forested area, feral goats, pigs and deer. In their different ways, they will damage your plants by removing flowers, fruit, palatable foliage, and bark.

Consider ways to protect young plants from pukeko if they are present in your planting area.

Planting the right species at the right time will allow good root growth before summer dry conditions. However if it is exceptionally dry over summer you may need to water your plants, especially in the first year.

## After planting

Weed control is essential, especially during the first three years. Plants that are kept clear of weeds will reward you with greater growth and vigour. Release in late spring, summer and autumn if required. Release clearing can either be done by hand or by spraying with a herbicide selected specifically for the job.

You may need to control animal pests such as possums, rabbits and hares or, if you are near a larger

Monitor your site. A yearly photograph taken from a constant vantage point will become a valuable historical record and a source of great satisfaction as your project develops. A count of successes and failures, and reasons for these, will assist future decision making.

In the following and subsequent seasons, replace failed plants. Once your first plantings are established (3–5 years), middle and late-stage plants which need some degree of protection can be added.



1. Plant in sites that have been hand-cleared or prepared with knockdown herbicide. Make the planting hole at least twice the size of the container. Add fertiliser if appropriate. Place the seedling in the hole.



2. Replace the soil around the roots and gently pull the seedling up. This will straighten any roots that are twisted or caught up.



3. Firm the soil around the seedling using your hands or the toe of your boot. Take care not to over-compress the soil. Leave a small depression to help retain moisture.



## What's in a name?

Most plants have at least three!

In the first instance they have a two-part scientific name that is recognised internationally and only allocated to a single species.

Next they have a common name which often relates to some characteristic of the plant. Different species can have the same common name. Some plants have more than one common name.

Sometimes the common name is also a Maori name — but some plants have both a common European name and a common Maori name.

To complicate matters, lesser-known plants often only have a scientific name.

This book uses common names in the first instance and scientific names if the plant does not have a common name. All names are given in the main plant lists on page 27.



# PART TWO: *target ecosystems*

## Geology, climate, soils and landscape

At 223,400 hectares, the Matemateaonga Ecological District is the largest ecological district in the North Island of New Zealand. The district lies largely in the Wanganui Sedimentary Basin, and unlike other ecological districts in the Taranaki Region, is completely land-locked.

Most of the district lies within the lowland bioclimatic zone (up to 450m asl) but there is an area of lower montane (above 450m asl) bioclimatic zone in the east. The district's steep hills are the result of active stream erosion on marine sediments deposited between 23.8 and 1.8 million years ago. Most of the major rivers and streams flow to the South Taranaki Bight through steep-sided valleys with narrow ridgelines that vary from 400m above sea level in the Waitotara area, to the highest, Pipipi, 786 metres above sea level, in the Matemateaonga Range.

The underlying hill country is made up of alternating beds of highly dissected sandstones, mudstones and localised areas with limestones. Sandstone generally lines the valley sides and caps the steepest hillcrests and ridgelines. Weathering and erosion continually washes soil and nutrients from the ridges and upper hillslopes and drops it in the valleys and lowland basins. As a result, soils on the narrow river terraces and valley floors are deep and fertile, compared with the weathered skeletal soils on the sharp ridgelines.

The climate is moderate, with warm summers and cool winters. Prevailing winds are generally north-easterlies reflecting a disturbed westerly airflow, often to gale force on ridge lines although this varies according to topography, and westerly winds are more common in the inland hill country. The many valleys are well sheltered but ridges are very exposed, especially in the south. Rainfall ranges up to 900 mm near the Whanganui River, to more than 2300 mm along the crest of the Matemateaonga Ranges.

With no coastal or mountain sites and few extensive wetlands, the district has a less diverse range of vegetation types and a lower number of plant species, than the neighbouring ecological districts, Egmont and North Taranaki. There is also comparatively little altitudinal zonation or climatic variation so the main determinants of vegetation types are slope / soil type and depth / drainage / disturbance history.



Before human settlement, most of the land in the district would have been covered in tall podocarp and broadleaf forest, apart from scrubland on near-vertical cliffs and limited wetland areas on the narrow valley floors. Since then, most of the district, particularly the easier country in valley basins and accessible hill country, has been modified or cleared although there are still large tracts of unlogged forest on land that is too steep for agriculture or where access is difficult.

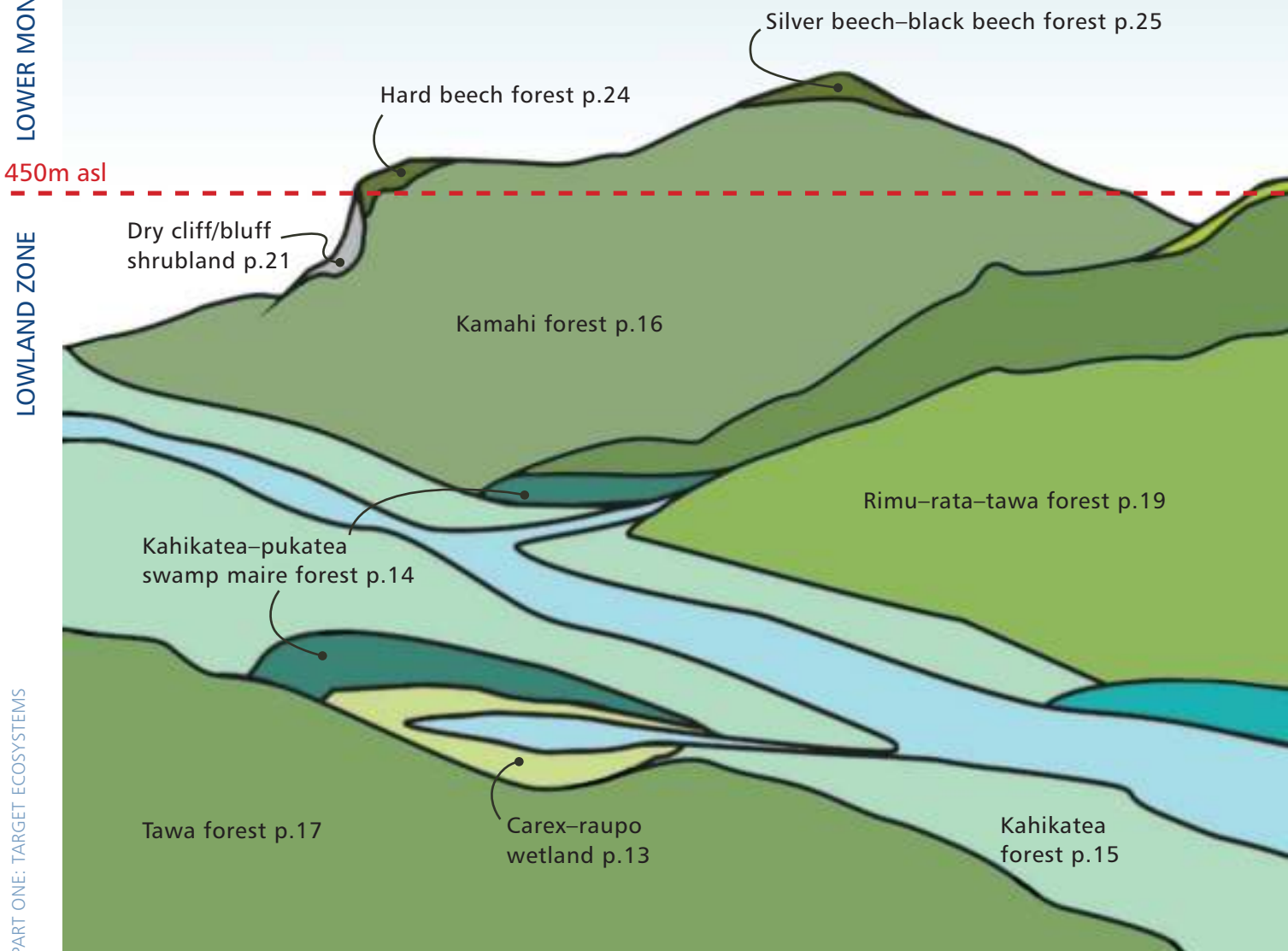
Due to a large number of failed farming attempts, there are many different stages of regenerating vegetation as cleared land reverts back to forest. These range from fernlands through to scrub and secondary forest. This planting guide focusses on restoring the key forest, shrubland and wetland types in the district, using these stages of forest regeneration as a framework to guide the order and timing that plant species should be introduced to a restoration site.

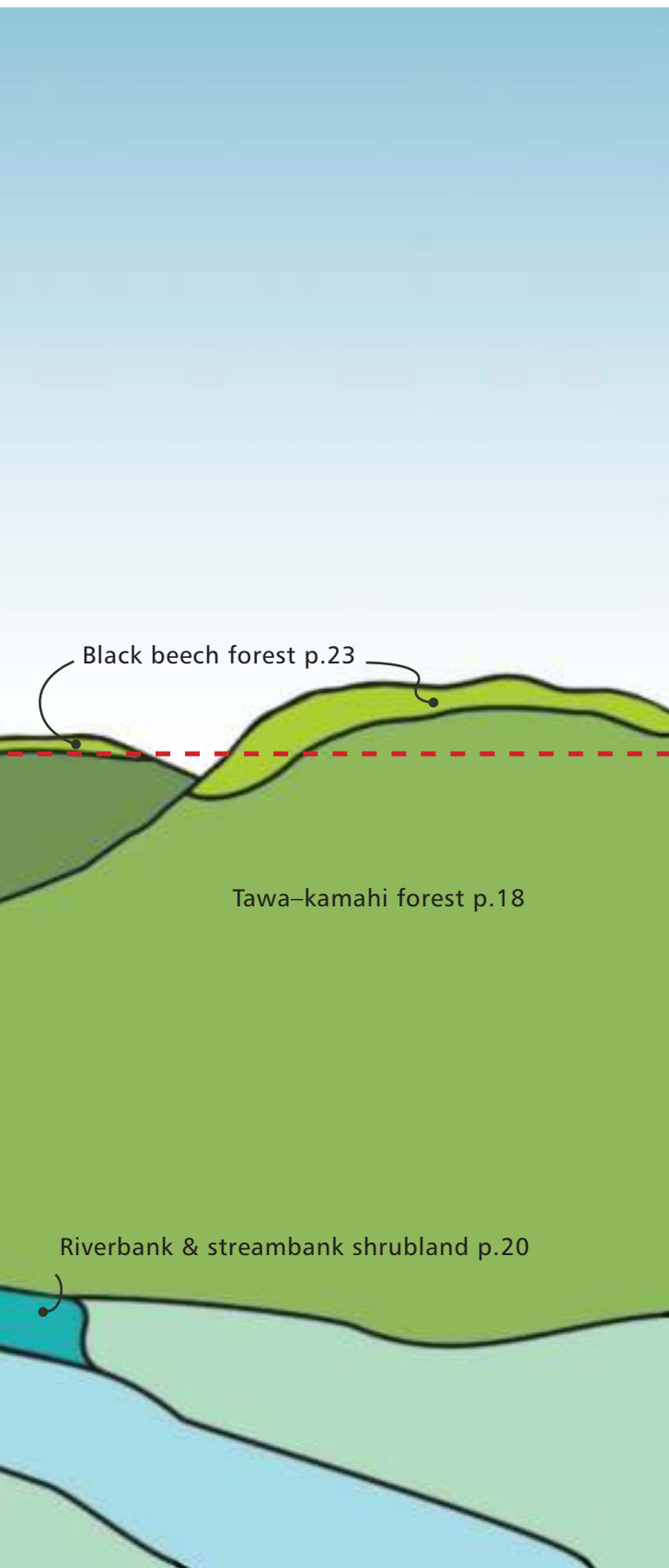
# Generalised landscape & vegetation types

LOWER MONTANE ZONE

LOWLAND ZONE

PART ONE: TARGET ECOSYSTEMS





## Forest pattern & landscape

The main forest types repeat across the district with a predictable forest pattern from the ridgelines down to the valley basins.

Black beech forest generally occurs on the narrow and sandstone capped ridge crests. Hard beech can also be present on some ridgelines, particularly in the north of the district. Red beech and silver beech are also present in the Matemateaonga, but are less common and are restricted to areas in the north-east, particularly the Retaruke Valley.

Mixed podocarp/broadleaf forests predominate on the hillslopes. Tawa is the most prominent, widespread broad-leaved tree species. The dominant podocarp tree is rimu, often standing high above the forest canopy. Many large rimu have been extracted for timber in the past, so big old trees are far less common than in pre-human times. Other common trees include hinau, rewarewa, pukatea, kamahi, Hall's totara and kahikatea. Their abundance depends mainly on topography — for example, kamahi generally replaces tawa above 550 m.

The fertile valley bottoms and river flats contain tall conifer forests that are largely dominated by kahikatea. Well-drained river terraces support matai and totara with broadleaf trees such as titoki and black maire. Wetter sites tend to be dominated by kahikatea and pukatea sometimes joined by swamp maire in the west and ribbonwood in the east. Wetlands are generally confined to small areas of narrow valley floor, where valleys have become dammed by landslides or accumulated sediment, and wetlands and small lakes have developed. These areas have been further reduced by agricultural development. In very wet areas, or near the margins, raupo, *Carex* species and giant umbrella sedge tend to dominate, but in areas of better drainage, or further from open water, they are replaced by kahikatea-pukatea forest.

Steep, near-vertical cliffs are also common. Their lack of stability and thin or absent soil mean that rather than forest there are shrublands. In damp, shaded places these are often a mix of tuhara, parataniwha and ferns, with hardy species such as toetoe, wharariki, tutu, snowberry and totorowhiti in drier and more exposed sites.

Raupo wetland, Rotokare Scenic Reserve

JANET HUNT

## Carex–raupo wetland

Wetlands are not common in the Matemateaonga Ecological District, and their extent has become further reduced by agricultural development. A large proportion of existing wetlands are present on the margins of lakes (including Lake Hawkes and Lake Rotokare), but also stream channels, fertile swamps and valley floors. In very wet areas, or near the margins of open water, raupo, *Carex* species (*C. secta*, *C. virgata*, *C. geminata*) and giant umbrella sedge often dominate, with occasional *Juncus* species (wiwi or giant rush), swamp millet, sharp spike sedge, kuawa and harakeke.

On drier sites, or further from open water, toetoe, *Coprosma rotundifolia*, swamp coprosma, swamp kiokio and kiwikiwi are frequent, with other common associates including karamu, cabbage tree, *Carex* species and baumea. Where there are areas of open water, colonies of red pond weed are also sometimes present. Good examples of lakeside wetland vegetation occur on valley floors and on the margins of Lake Rotokare and Lake Hawkes.

### SEQUENCE

This vegetation type is composed entirely of early successional species, which, once established, are capable of maintaining dominance at a site indefinitely. This type of wetland could be created by directly planting out the characteristic species listed, with the initial planting reflecting the final target composition. For example, raupo, pukio (*Carex secta*, *C. virgata*) and giant umbrella sedge could be introduced to the wettest areas, and species such as toetoe, *Coprosma rotundifolia*, karamu and kiwikiwi could be planted on slightly elevated mounds, or further from the water's edge.

Following re-vegetation, substrate at the site might become better drained (especially at the wetland margins) and this may provide the opportunity to develop pukatea or kahikatea forest through secondary plantings. Refer to kahikatea and kahikatea-pukatea (swamp maire) forest types for relevant plant species.

### WE RECOMMEND

TREES	Cabbage tree ✓, kahikatea ✓, pukatea ✓
SHRUBS	<i>Coprosma rotundifolia</i> , karamu ✓, swamp coprosma ✓
FERNS	Kiwikiwi, swamp kiokio
GRASSES	Swamp millet, toetoe ( <i>Austroderia toetoe</i> ) ✓
SEDGES	Baumea ( <i>Machaerina articulata</i> , <i>M. rubiginosa</i> , <i>M. tenax</i> ), giant umbrella sedge, kuawa, pukio ✓, rautahi, sharp spike sedge
RUSHES	Giant rush, wiwi ✓
HERBS	Raupo

✓ Taranaki stock that is most likely to be available locally. Unmarked species may be more difficult to obtain and need to be propagated by arrangement with a local nursery.

## Kahikatea–pukatea/swamp maire forest

Clearance for agriculture has reduced this forest type to isolated patches on lake margins and small valley floor sites. The canopy is composed of varying amounts of kahikatea, pukatea and/or swamp maire, which is more common in the east of the district, with kamahi and titoki in drier locations. Mahoe, kotukutuku, tawa and kamahi are also present along main streams or large open basins.

The understory often comprises dense tangles of the climbers kareao (supplejack) and kiekie, and the small trees/shrubs pigeonwood, hangehange, ramarama, mahoe, putaputaweta, swamp coprosma, thin-leaved coprosma, turepo, and katote and nikau. Ribbonwood can also be present, particularly in the east. Common ground cover species are hooked sedges, swamp astelia, sweet fern, pikopiko and gully fern. There are examples of this forest type on flat areas around the lake edge at Rotokare Scenic Reserve and at Patukino Scenic Reserve.

### SEQUENCE

Begin with early successional species such as harakeke, sedges, cabbage tree, swamp coprosma, putaputaweta, swamp astelia and kahikatea. Leave swamp maire and pukatea for planting in light gaps once adequate shelter has been established. Hangehange, pigeonwood and thin-leaved coprosma are also best planted under an existing canopy. Close attention to water levels is required, with sedges in the dampest sites, pukatea, kahikatea, swamp maire and swamp coprosma on mounds and tawa, titoki and mahoe on better-drained sites. Kiekie and kareao are best left until established trees are capable of supporting their weight. Ferns, epiphytes and lianes can be added, although those with wind-dispersed spores or seeds tend to self-colonise anyway.

### WE RECOMMEND

TREES	Black maire, cabbage tree✓, kahikatea✓, kamahi✓, kotukutuku, mahoe✓, narrow leaved maire, nikau✓, pigeonwood✓, pukatea✓, putaputaweta, ramarama, ribbonwood, rimu✓, swamp maire, tawa✓, titoki
SHRUBS	Hangehange, kanono✓, ramarama, swamp coprosma✓, thin-leaved coprosma, turepo
LIANES & SCRAMBLERS	Kareao, kiekie✓
TREE FERNS	Katote
FERNS	Gully fern, pikopiko, sweet fern
GRASSES	Basket grass, bush rice grass
SEDGES	Hook sedge, pukio✓, Zotov's hook sedge
RUSHES	Giant rush, grass-leaved rush
HERBS	Harakeke✓, kakaha, swamp astelia

✓ Taranaki stock that is most likely to be available locally. Unmarked species may be more difficult to obtain and need to be propagated by arrangement with a local nursery.

## Kahikatea forest

Swamp and semi-swamp forest is thought to have been previously widespread in the Matemateaonga Ecological District, on poorly-drained alluvial flats and terraces as well as swamp margins with deep fertile soils capable of supporting forest. Because the alluvial flats and terraces are very narrow, kahikatea-dominated forest grades rapidly into hillslope types (pages 16 to 19) as drainage and elevation increase.

The canopy is made up of dense kahikatea with occasional pukatea and swamp maire. The understory is variable, with kaikomako and mapou being the common understory trees. Nikau, mahoe, cabbage tree, ramarama, mingimingi and turepo may also be present, along with the climbers kareao (supplejack) and kiekie. The shrub layer comprises varying amounts of hangehange, swamp coprosma and thin-leaved coprosma. The forest floor comprises a mix of pukio and forest sedge, hooked sedges, bush rice grass, basket grass, and ferns (pikopiko, swamp kiokio, mata). Good examples of this vegetation type can be viewed at Ruatiti Scenic Reserve.

### SEQUENCE

Start with a planting of early successional species such as kahikatea, harakeke, sedges, cabbage tree, and swamp coprosma. Once adequate shelter is established, plant pukatea and swamp maire into light gaps. Plant understory/shrub layer species such as hangehange, nikau and turepo under an existing canopy. Leave the climbers kiekie and kareao until established trees are capable of supporting their weight. Add ferns, along with epiphytes and lianes, where required, although those with wind-dispersed spores or seeds such as pikopiko, swamp kiokio and mata tend to self-colonise. Pay close attention to water levels and plant pukatea, kahikatea and swamp maire on mounds, and sedges such as pukio in more poorly drained sites.

### WE RECOMMEND

TREES	Cabbage tree✓, kahikatea✓, kaikomako, mahoe✓, mapou, nikau✓, pukatea✓, putaputaweta, swamp maire, turepo
SHRUBS	Hangehange, kanono✓, mingimingi, ramarama, swamp coprosma✓, thin-leaved coprosma
LIANES & SCRAMBLERS	Kareao, kiekie✓
FERNS	Mata, pikopiko, swamp kiokio
GRASSES	Basket grass, bush rice grass
SEDGES	Forest sedge, hook sedge, pukio, Zotov's hook sedge
RUSHES	Giant rush, grass-leaved rush
HERBS	Harakeke✓, kakaha, swamp astelia

## Kamahi forest

Kamahi forest is found on the district's steep and exposed hillslopes, where soils tend to be thin and dry. Here, kamahi is the dominant canopy tree, although rewarewa can sometimes be co-dominant especially on upper hillslopes.

Other tree species that may also be present include black beech, hinau, tawheowheo, and where there has been a tree fall or disturbance, prickly mingimingi, tall mingimingi and manuka. Because kamahi is such a hardy species it often dominates the driest, steepest or most exposed hillslope sites except for the occasional rimu, Hall's totara, and miro on wetter sites.

The understory of kamahi-dominated forest is often made up of tree ferns, prickly mingimingi, forest cabbage tree, heketara and rangiora. Hook sedges plus numerous ferns such as petipeti, thread fern, hairy fern, mokimoki and sweet fern form the often sparse ground cover.

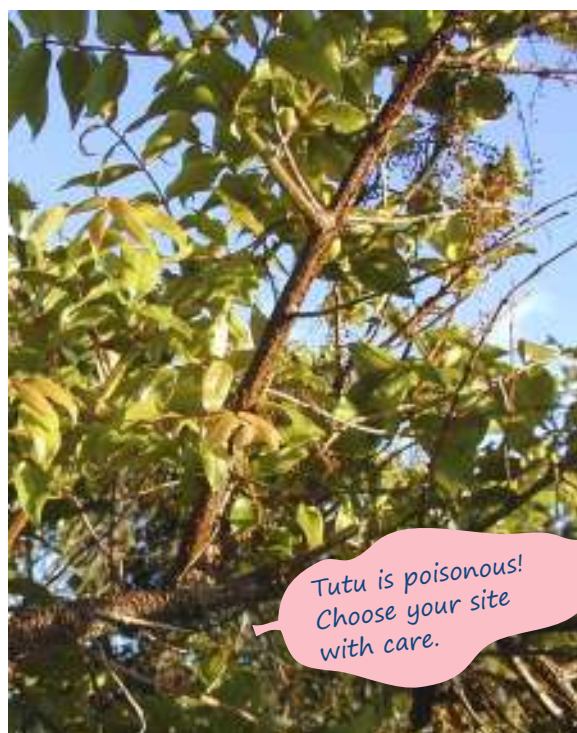
### SEQUENCE

Kamahi is a hardy, early successional species and therefore can be among first plantings but we recommend also planting a mix of lesser amounts of other hardy tree species such as manuka, mingimingi, prickly mingimingi and tawheowheo.

Tutu boosts soil nitrogen levels, so can also be included in the initial planting but only with great caution because nearly all parts of the plant are poisonous and it has been responsible for stock deaths. Tutu is also a potential health risk when in foraging range of beehives. If the site has been previously farmed (and fertilised) it may not be needed.

### WE RECOMMEND

TREES	Black beech, forest cabbage tree, Hall's totara, hinau, kamahi ✓, manuka ✓, matai ✓, miro, rewarewa ✓, rimu ✓, tawheowheo
SHRUBS	Heketara, mingimingi, prickly mingimingi, rangiora ✓, tutu
LIANES & SCRAMBLERS	Kiekie ✓, mokimoki
TREE FERNS	Ponga ✓, wheki ✓
FERNS	Hairy fern, petipeti, sweet fern, thread fern
SEDGES	Fine-leaved hook sedge, hook sedge, Zotov's hook sedge





## Tawa forest

Tawa forest is found on main hillslopes, gully sides, terraces and small spurs. Tawa dominates the canopy but hinau, kamahi, tawheowheo, and pigeonwood are also common, with pukatea and kahikatea in the canopy in gullies. Rimu, northern rata and rewarewa occasionally grow above the canopy as does matai near valley bottoms.

The understory includes hangehange, ponga, mahoe, katote, kanono, mahoe, putaputaweta, young tawa, wheki, karamu, taurepo and occasional lacebark, as well as tangles of kareao

(supplejack) and kiekie. Nikau can also be abundant in the understory, particularly in damp seepages.

Ground cover can sometimes be sparse with a lot of leaf litter, or, especially in valley basins, dense with species such as pikopiko, single crape fern, hooked sedges (caver's beard is particularly important in seepages near streams), grasses (including bush rice grass), nini, kiwikiwi, shield fern, sweet fern, hairy fern and white rata. Good examples of tawa forest can be found at Awahou Scenic Reserve and Tahunamaere Scenic Reserve.

### SEQUENCE

Tawa needs to be planted under a well-established canopy of earlier, hardy species. Begin with species such as karamu, kanuka, rangiora, putaputaweta, lacebark and kohuhu, along with lesser amounts of rewarewa, horoeka and kamahi.

Tutu boosts soil nitrogen levels but may not be needed if the land has been previously farmed. Rimu needs to be planted in canopy

gaps and while northern rata can be planted in open sites, it more often begins life in treetops, in nest epiphytes. Taurepo, hangehange, mahoe, pigeonwood, kanono and kawakawa are best planted under an existing canopy. Ferns, epiphytes and lianes can be added although those with wind-dispersed spores or seeds tend to colonise on their own.

### WE RECOMMEND

TREES	Hinau, horoeka ✓, kahikatea ✓, kamahi ✓, kanuka ✓, karaka ✓, kohuhu, mahoe ✓, lacebark ✓, matai ✓, nikau ✓, northern rata ✓, pigeonwood ✓, pukatea ✓, putaputaweta, rewarewa ✓, rimu ✓, tawa ✓, tawheowheo, titoki, totara, wharangi
SHRUBS	Hangehange, kanono ✓, karamu ✓, kawakawa ✓, rangiora ✓, taurepo, toropapa
LIANES &	Climbing rata ( <i>Metrosideros diffusa</i> ), kareao, kiekie ✓, mokimoki,
SCRAMBLERS	white rata ✓
TREE FERNS	Katote, ponga, wheki ✓
FERNS	Hairy fern, kiwikiwi, nini, pikopiko, shield fern, smooth shield fern, sweet fern
GRASSES	Basket grass, bush rice grass
SEDGES	Caver's beard hook sedge, hook sedge
RUSHES	Giant rush, grass-leaved rush
HERBS	Kakaha, swamp astelia ✓

✓ Taranaki stock that is most likely to be available locally. Unmarked species may be more difficult to obtain and need to be propagated by arrangement with a local nursery.

## Tawa–kamahi forest

Tawa and kamahi are the principal broadleaf species in the district, abundant over hillslopes as well as ridges, dipslopes and stream and river terraces. Tawa usually dominates but kamahi is hardier and prevails on drier, steeper or more exposed sites such as well-drained stream banks. Rewarewa is often scattered throughout, with crowns emerging above the canopy. Other frequent-to-occasional canopy species include white maire, hinau, tawheowheo, horoeka and rimu.

The understory commonly consists of multiple tree ferns (katote, ponga, wheki), with swamp coprosma, heketara, pate, rangiora, mahoe, kanono, kareao (supplejack), kiekie, pigeonwood, young tawa being common and occasional toropapa. Ground cover is dominated by ferns (kiwikipiki, nini, pikopiko, gully fern), climbing rata, hook sedge and tree seedlings. Parataniwha is common in damp shady valley bottoms. Good examples of this forest type can be found at Patukino Scenic Reserve.

### SEQUENCE

Tawa needs to be planted beneath a well-established canopy of early stage, hardy species. Begin with kamahi, kanuka, karamu, kanono, lacebark, northern rata and wheki. Tutu can boost soil nitrogen levels if needed (see p.16). Rimu needs to be planted in canopy gaps and while northern rata can be planted in open sites, it normally begins life in treetops, once nest epiphytes are abundant. Shrubs such as mahoe, pigeonwood and kanono are best planted beneath an existing canopy. Ferns, epiphytes and lianes can be added, although those with wind-dispersed spores or seeds tend to arrive naturally.

### WE RECOMMEND

TREES	Hinau, horoeka✓, kamahi✓, kanuka✓, lacebark✓, mahoe✓, northern rata✓, pigeonwood✓, rewarewa✓, rimu✓, tawa✓, tawheowheo, white maire
SHRUBS	<i>Coprosma rotundifolia</i> , heketara, kanono✓, karamu✓, pate✓, rangiora✓, toropapa, tutu
LIANES &	Climbing rata ( <i>Metrosideros diffusa</i> ), kareao, kiekie✓, white rata
SCRAMBLERS	
TREE FERNS	Katote, ponga, wheki✓
FERNS	Gully fern, kiwikipiki, nini, pikopiko
GRASSES	Bush rice grass
SEDGES	Hook sedge
HERBS	Parataniwha
EPIPHYTES	Kahakaha, perching lily



Kamahi

JANET HUNT

## Rimu–rata/tawa forest

Rimu–rata/tawa forest is common on well drained, moderately steep hill country, including ridges, side-slopes, and river and stream banks. Large occasional-to-common rimu and northern rata emerge above a tawa-dominated canopy. Rewarewa can also be emergent above the canopy, particularly along ridgelines and upper hillslopes, but at much lower densities than rimu and rata. Kamahi and hinau are also sometimes common canopy species along with the occasional miro, rimu, tawheowheo and toro, pukatea and kahikatea, the latter two in wetter, deeper soils such as poorly-drained gullies or depressions. White and black maire can also be present in low densities.

Species often present in the understory include tree ferns, kanono, mahoe, kareao (supplejack), kiekie, pigeonwood and lowland horopito. The ground cover consists of hook sedges, bush rice grass and ferns (petipeti, kiokio, peretao, gully fern, single crape fern and kidney fern).

### SEQUENCE

With the exception of northern rata, the dominant tree species in rimu–rata/tawa forest are mid- to late-successional and therefore must be planted beneath a well-established canopy of hardy species such as broadleaf, karamu, rangiora, lacebark, totara, kohuhu, rewarewa, horoeka, kamahi, and wheki. Tutu boosts soil nitrogen levels but may not be needed if the land has been previously farmed. Rimu needs to be planted in canopy gaps and although northern rata can be planted in open sites, it normally begins life in treetops, once nest epiphytes are abundant. Shrubs such as mahoe, pigeonwood and kanono are best planted under an existing canopy. Ferns, epiphytes and lianes can be added, although those with light wind dispersed spores or seeds tend to self-colonise.

### WE RECOMMEND

TREES	Black maire, broadleaf, hinau, horoeka✓, kahikatea✓, kamahi✓, kohuhu, lacebark✓, mahoe✓, manuka✓, matai✓, northern rata✓, pate✓, pigeonwood✓, pukatea✓, rewarewa✓, rimu✓, tawa✓, tawheowheo, toro, totara, white maire
SHRUBS	Heketara, kanono, karamu✓, lowland horopito, rangiora✓, tutu
LIANES & SCRAMBLERS	Kareao, kiekie
TREE FERNS	Katote, ponga, wheki✓
FERNS	Kiokio, peretao, petipeti
GRASSES	Bush rice grass
SEDGES	Fine-leaved hook sedge, hook sedge, Zotov's hook sedge

✓ Taranaki stock that is most likely to be available locally. Unmarked species may be more difficult to obtain and need to be propagated by arrangement with a local nursery.

Steep, near-vertical cliffs are a widespread and common feature in the Matemateaonga Ecological District. Cliff vegetation can be divided into two main types depending on drainage: 1) river bank and stream bank shrubland and 2) dry cliff and bluff shrubland.

## River bank & stream bank shrubland

River bank and stream bank shrubland is found in shaded areas where natural springs and seepages keep the slopes damp, or along the sides of the many stream and river gorges. Characteristic species include tuhara, parataniwha and the ferns kiokio and Green Bay kiokio, with lesser amounts of *Anaphalioides trinervis*, and in some locations, dense tangles of kiekie. The naturally uncommon herbaceous Turner's Daisy can also be found in the Whanganui River gorge area. This species may extend further, but its distribution in the district is still not fully understood.

Examples of this vegetation type can be viewed on wet cliff faces along the Whanganui River.

### SEQUENCE

In damp shaded areas, this type of shrubland can be created by directly planting the characteristic species listed, with the initial planting reflecting the final target composition. Spore-dispersed ferns such as kiokio and Green Bay kiokio may also arrive naturally. In more open situations, greater use of kiokio and tuhara are necessary, because these species are hardier and cope better with exposure. If introducing parataniwha to the site, initial cover by earlier plantings will be required to provide additional shade as this species does not cope well with high light levels.



Whanganui River

JANET HUNT

### WE RECOMMEND

LIANES & SCRAMBLERS	Kiekie ✓
FERNS	Kiokio, Green Bay kiokio
SEDGES	Tuhara
HERBS	<i>Anaphalioides trinervis</i> , Turner's Daisy, parataniwha

## Dry cliff/bluff shrubland

Dry cliff/bluff shrubland occupies the many vertical cliff faces found adjoining the district's hillslopes, typically just below the beech-capped ridgelines (pages 23 to 25). Vegetation mixes differ depending on the substrate, slope and the stability of the site. However, all sites generally lack the deep soils needed for moisture accumulation and therefore plant species are all hardy and drought tolerant.

The steepest slopes are predominantly comprised of toetoe, wharariki, tutu, bush snowberry, snowberry species (*Gaultheria oppositifolia* and *G. paniculata*), kiokio, totorowhiti, Coromandel tree daisy and *Anaphalioides subrigida*. Where cliffs merge with small ledges, or become less extreme, other woody species such as manuka, koromiko (*Hebe stricta* var. *stricta*), *Coprosma rhamnoides*, karamu, broadleaved five finger and pate can also establish.

Examples of this vegetation type can be found on the cliff areas of the Papapotu Scenic Reserve and the Rotokahu Scenic Reserve.



### SEQUENCE

In this vegetation type, the characteristic species toetoe, tutu and wharariki can form the initial planting, along with lesser amounts of snowberry species (*Gaultheria paniculata*, *G. oppositifolia*), manuka, totorowhiti and Coromandel tree daisy. Once successfully established, the less hardy species such as koromiko, *Coprosma rhamnoides*, karamu and pate can be introduced to the site. Being a spore-dispersed fern, kiokio may arrive naturally. Over-sowing with manuka seed may be needed where the site is extremely steep or rocky and hand planting is not feasible.

### WE RECOMMEND

TREES	Broadleaved five finger, manuka ✓, pate ✓
SHRUBS	Bush snowberry, Coromandel tree daisy, <i>Coprosma rhamnoides</i> , karamu ✓, koromiko ( <i>Hebe stricta</i> var. <i>stricta</i> ), snowberry species ( <i>Gaultheria oppositifolia</i> and <i>G. paniculata</i> ), totorowhiti, tutu
FERNS	Kiokio
GRASSES	Toetoe ( <i>Austroderia fulvida</i> ) ✓
HERBS	<i>Anaphalioides subrigida</i> , wharariki

✓ Taranaki stock that is most likely to be available locally. Unmarked species may be more difficult to obtain and need to be propagated by arrangement with a local nursery.

Beech forest, Pouiatoa Conservation Area

BARBARA HAMMONDS

## Black beech forest

Black beech and hard beech forests in the Matemateaonga district are probably remnants of far more extensive forest that was replaced by other broadleaf species because of changes in soil fertility and climate warming.

Black beech is the most common beech in this ecological district and is found on steep sandstone-topped ridgelines, spurs and hillsides where soils are often thin, dry and infertile. Black beech dominates the canopy with occasional-to-frequent rewarewa, kamahi, Hall's totara, miro, hinau and horoeka; hard beech is also occasionally present.

The understory is characteristically sparse because of the steep sites and the thin soils,

and consists mostly of snowberry (*Gaultheria paniculata*), niniao, lowland horopito, shining karamu, kanono, manuka, hangehange, mingimingi, heketara and young kamahi, with lesser amounts of mapou, rangiora, native broom, mahoe, ponga, hinau and a few tall mingimingi. Ground cover consists mostly of ferns (kidney fern, maidenhair fern, kowaowao and irirangi), Easter orchid, bamboo orchid and bush rice grass. Less common species include kiokio, broad-leaved poa, hook sedges and occasional beech seedlings.

Good examples of black beech forest occur on ridges at the Awahou Scenic Reserve and Moeawatea Scenic Reserve.

### SEQUENCE

Most species in black beech forest are extremely hardy and can be planted at the beginning of revegetation (hard beech, Hall's totara, kamahi, tawheowheo, tanekaha, northern rata and rewarewa). Understory and ground layer species which can also be planted at the restoration outset include tall mingimingi, snowberry, prickly mingimingi and kauri grass.

Manuka is a useful nurse species on extreme and exposed sites with poor or thin soils. If the

site is steep and unsuitable for hand planting, it can be over-sown with manuka seed.

Once cover is established, less hardy species can be introduced; a few scattered miro can be planted in shadier micro sites, along with rangiora, mahoe and hangehange. If ground cover species such as maidenhair fern, kidney fern, and bush rice grass do not self-establish, these can also be introduced beneath a formed canopy.

### WE RECOMMEND

TREES	Black beech, Hall's totara, hard beech, hinau, horoeka ✓, kamahi ✓, mahoe ✓, manuka ✓, miro, northern rata ✓, rewarewa ✓, tanekaha, tawheowheo
SHRUBS	Bush snowberry, common broom, hangehange, heketara, lowland horopito, kanono ✓, mapou, niniao, prickly mingimingi, rangiora ✓, shining karamu ✓, snowberry ( <i>Gaultheria paniculata</i> ), tall mingimingi
GRASSES	Bush rice grass
FERNS	Bracken, kidney fern, maidenhair fern
SEDGES	Fine-leaved hook sedge, hook sedge, Zotov's hook sedge and mapere ( <i>Gahnia setifolia</i> )
HERBS	Kauri grass, turutu

✓ Taranaki stock that is most likely to be available locally. Unmarked species may be more difficult to obtain and need to be propagated by arrangement with a local nursery.

## Hard beech forest

Hard beech forest is found largely around the Whangamomona area in the north, and is basically absent from the Matemateaonga Range. Like black beech forest, hard beech forests tend to be found on sandstone-capped ridges and bluffs. Hard beech can grow as pure stands, where the canopy is composed entirely of this species, or in association with scattered kamahi, rewarewa, tawheowheo and tanekaha (the latter two in the north of the district only). On the sharpest ridgecrests there may also be a few emergent northern rata.

The understory is often sparse but includes tall mingimingi, snowberry, niniao, lowland horopito, karamu and prickly mingimingi. The ground cover

consists mostly of ferns (kidney fern, common maidenhair, kowaowao, filmy fern and irirangi), bamboo orchid, Easter orchid and bush rice grass. Other less common species include kiokio, broad-leaved poa, hook sedge, Zotov's hook sedge, fine-leaved hook sedge, turutu, kauri grass, and mapere (*Gahnia setifolia*). In more fertile soils such as in the narrow transition zone between the sharp ridgecrest vegetation and broadleaf forest, or where there is deeper wetter soil, tree species such as rimu, miro, kamahi, Hall's totara, tawa and hinau can also be present in the canopy. Examples of hard beech forest occur within the Whanganui National Park and around Whangamomona.

### SEQUENCE

Many trees (hard beech, kamahi, northern rata and rewarewa) in this forest type are extremely hardy and can be included in the initial plantings. Understory and ground layer species which can also be planted at the outset are tall mingimingi, prickly mingimingi and kauri grass.

Manuka is a useful nurse species on extreme and exposed sites with poor or thin soils. If the

site is steep and unsuitable for hand planting, it can be over-sown with manuka seed.

Once cover is established, less hardy species such as tawa, miro and rimu can be introduced in shadier micro sites, along with kiekie, turutu, ferns and *Metrosideros* species. The latter two are wind-dispersed and may arrive naturally.

### WE RECOMMEND

TREES	Hard beech, kamahi ✓, manuka ✓, miro, northern rata ✓, rewarewa ✓, rimu ✓, tanekaha, tawa ✓, tawheowheo
SHRUBS	Karamu ✓, lowland horopito, niniao, snowberry ( <i>Gaultheria paniculata</i> ), prickly mingimingi, tall mingimingi
LIANES & SCRAMBLERS	Climbing rata ( <i>Metrosideros fulgens</i> ), kiekie ✓, white rata ✓
FERNS	Common maidenhair, filmy fern, irirangi, kidney fern, kiokio, kowaowao
GRASSES	Bush rice grass
SEDGES	Fine-leaved hook sedge, hook sedge, Zotov's hook sedge
HERBS	Kauri grass, turutu

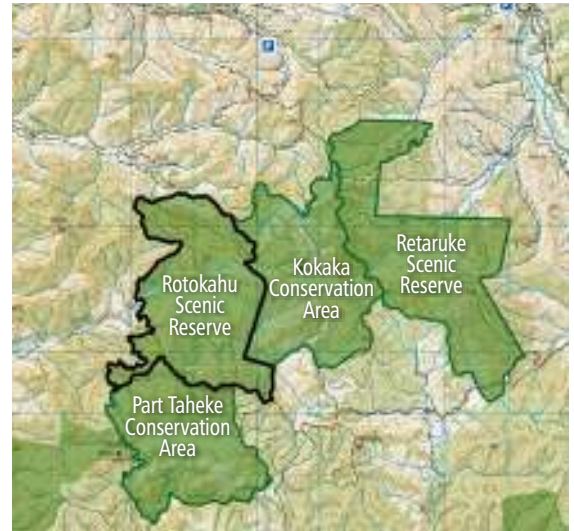
✓ Taranaki stock that is most likely to be available locally. Unmarked species may be more difficult to obtain and need to be propagated by arrangement with a local nursery.



## Silver beech–black beech forest

This vegetation type has a very limited distribution in the Matemateaonga Ecological District, only being present in two locations in the eastern peripheries of the District, within the Retaruke Valley. The most significant stand is within the Rotokahu Scenic Reserve, with the other being located on Mt Dawson. Silver beech, or silver and black beech dominate, with lesser amounts of miro, Hall’s totara, broadleaf, tawa, tawheowheo and rewarewa. Very little red beech is found in the district, but it is also locally present at these locations.

The understory commonly comprises hangehange, heketara, mingimingi, manuka in gaps, and miro seedlings and saplings. As in black beech forest, ground cover consists mostly of ferns (kidney fern, common maidenhair, kowaowao, filmy fern and irirangi), Easter orchid, bamboo orchid and bush rice grass, with smaller amounts of turutu and kauri grass.



### SEQUENCE

The majority of characteristic tree species in silver beech–black beech forest (silver beech, hard beech, Hall’s totara, kamahi, tawheowheo, tanekaha and rewarewa) are extremely hardy and can be included in the first plantings. Understory and ground layer species which can also be planted at the outset include mingimingi and kauri grass.

Once cover is established, less hardy species can be introduced, such as a few scattered miro in shadier micro sites, along with rangiora and hangehange. If ground cover species such as common maidenhair, broad-leaved poa, hook sedge, Zotov’s hook sedge and fine-leaved hook sedge do not self-establish, these should be introduced beneath a formed canopy.

### WE RECOMMEND

TREES	Black beech, hard beech, Hall’s totara, kamahi ✓, mahoe ✓, manuka ✓, miro, rewarewa ✓, red beech, silver beech, tanekaha, tawheowheo
SHRUBS	Common broom, hangehange, heketara, kanono ✓, mapou, mingimingi, rangiora ✓
FERNS	Bracken, common maidenhair, filmy fern, irirangi, kidney fern, kowaowao
GRASSES	Broad-leaved poa, bush rice grass
SEDGES	Fine-leaved hook sedge, hook sedge, Zotov’s hook sedge and mapere ( <i>Gahnia setifolia</i> )
HERBS	Kauri grass, turutu



Wetland forest, Rotokare Scenic Reserve

# PART THREE: Reference information

## Plant list

Plants in this list in a pale yellow cell are mentioned in Part 2 or are threatened, at risk or regionally distinctive in Taranaki. They are suitable for planting in Matemateaonga Ecological District. The plants in the white cells are also found in the district and can also be considered in appropriate conditions. Plants are organised according

to type (tree, shrub, grass etc) with a key to show how tall each plant will grow, and a column to describe the conditions that will suit it best. If you are having difficulty obtaining any of the plant species listed please contact the Biodiversity Section of the Taranaki Regional Council.

COMMON/MAORI NAME	BOTANICAL NAME	Final height (m)	Wind	Frost hardy	Salt tolerant	Well-drained soil	Poorly-drained soil	Sun	Partial shade	Shade	Bee-friendly	Bird-friendly
<b>TREES</b>												
Beech, black	<i>Fuscospora solandri</i>	15		•		•		☀️	☀️☁️			
Beech, hard	<i>Fuscospora truncata</i>	20		•		•		☀️	☀️☁️			
Beech, red	<i>Fuscospora fusca</i>	25		•		•		☀️	☀️☁️			
Beech, silver	<i>Lophozonia menziesii</i>	15		•		•	•	☀️	☀️☁️			
Broadleaf / kapuka	<i>Griselinia littoralis</i>	10	•	•	•	•	•	☀️	☀️☁️			•
Cabbage tree , forest / ti ngahere	<i>Cordyline banksii</i>	4		•					☀️☁️	☁️		•
Cabbage tree / ti kouka	<i>Cordyline australis</i>	10	•	•	•	•	•	☀️	☀️☁️		•	•
Five finger, broadleaved	<i>Pseudopanax laetus</i>	5		•		•			☀️☁️			
Five finger / whauwhaupaku	<i>Pseudopanax arboreus</i>	10		•					☀️☁️			•
Hinau	<i>Elaeocarpus dentatus</i>	20	•	•		•		☀️	☀️☁️		•	•
Horoeka / lancewood	<i>Pseudopanax crassifolius</i>	15	•	•		•	•	☀️	☀️☁️		•	•
Kahikatea / white pine	<i>Dacrycarpus dacrydioides</i>	25+	•	•			•	☀️	☀️☁️			•
Kaikomako	<i>Pennantia corymbosa</i>	6	•			•	•	☀️	☀️☁️			
Kamaha	<i>Weinmannia racemosa</i>	25	•	•		•	•	☀️	☀️☁️		•	•
Kanuka	<i>Kunzea ericoides</i>	10	•	•	•	•		☀️	☀️☁️		•	
Karaka	<i>Corynocarpus laevigatus</i>	15	•		•	•		☀️	☀️☁️			•
Karo	<i>Pittosporum crassifolium</i>	8	•	•	•	•		☀️	☀️☁️			•
Kohekohe	<i>Dysoxylum spectabile</i>	15	•		•	•	•		☀️☁️	☁️		•
Kohuhu / kohukohu	<i>Pittosporum tenuifolium</i>	10	•	•	•	•			☀️☁️			
Kotukutuku / tree fuchsia	<i>Fuchsia excorticata</i>	15		•		•	•		☀️☁️	☁️	•	•
Lacebark / houhere	<i>Hoheria sexstylosa</i>	15	•	•		•	•	☀️			•	
Mahoe / whitey wood	<i>Melicytus ramiflorus</i>	10	•		•	•	•	☀️	☀️☁️	☁️	•	•

COMMON/MAORI NAME	BOTANICAL NAME	Final height (m)	Wind	Frost hardy	Salt tolerant	Well-drained soil	Poorly-drained soil	Sun	Partial shade	Shade	Bee-friendly	Bird-friendly
Maire, swamp / Waiwaka / maire tawake	<i>Syzygium maire</i>	15					•	☀	☀☁			•
Maire, black	<i>Nestegis cunninghamii</i>	25	•	•					☀☁			•
Maire, narrow-leaved	<i>Nestegis montana</i>	15		•		•			☀☁			•
Maire, white	<i>Nestegis lanceolata</i>	20	•	•		•		☀	☀☁			•
Maire, willow-leaved / maire taike	<i>Mida salicifolia</i>	6				•			☀☁	☁		
Makomako / wineberry	<i>Aristotelia serrata</i>	10				•			☀☁	☁		•
Manuka	<i>Leptospermum scoparium</i>	5	•	•	•	•	•	☀			•	
Matai / black pine	<i>Prumnopitys taxifolia</i>	25		•		•	•	☀	☀☁			•
Miro / brown pine	<i>Prumnopitys ferruginea</i>	25		•		•	•			☁		•
Nikau	<i>Rhopalostylis sapida</i>	10				•	•		☀☁	☁	•	•
Olearia	<i>Olearia albida</i>	8	•		•	•		☀				
Pittosporum	<i>Pittosporum colensoi</i>	10		•		•			☀☁			
Pigeonwood / porokaiwhiri	<i>Hedycarya arborea</i>	12	•			•			☀☁			•
Pokaka	<i>Elaeocarpus hookerianus</i>	8		•					☀☁			
Puka	<i>Griselinia lucida</i>	10	•	•	•	•		☀	☀☁			•
Pukatea	<i>Laurelia novae-zelandiae</i>	25					•	☀	☀☁			
Puriri	<i>Vitex lucens</i>	20	•		•	•		☀	☀☁		•	•
Putaputaweta / marbleleaf	<i>Carpodetus serratus</i>	10		•		•	•	☀	☀☁		•	
Rata, northern	<i>Metrosideros robusta</i>	25+		•		•	•	☀	☀☁		•	•
Raukawa	<i>Raukawa edgerleyi</i>	12	•	•		•	•	☀	☀☁			•
Rewarewa / NZ honeysuckle	<i>Knightia excelsa</i>	25+	•	•		•		☀	☀☁		•	•
Ribbonwood / manatu	<i>Plagianthus regius</i>	15		•		•		☀	☀☁		•	•
Rimu / red pine	<i>Dacrydium cupressinum</i>	25+	•	•		•	•	☀	☀☁		•	
Tanekaha	<i>Phyllocladus trichomanoides</i>	25		•		•			☀☁			
Tarata / lemonwood	<i>Pittosporum eugenioides</i>	12	•	•	•	•		☀	☀☁		•	
Tawa	<i>Beilschmiedia tawa</i>	25				•	•		☀☁	☁		•
Tawheowheo	<i>Quintinia serrata</i>	12	•	•		•		☀☁				
Titoki	<i>Alectryon excelsus</i>	20	•			•		☀	☀☁		•	
Toro	<i>Myrsine salicina</i>	10		•		•		☀	☀☁		•	
Totara	<i>Podocarpus totara</i>	25+	•	•		•		☀	☀☁		•	
Totara, mountain / Hall's totara	<i>Podocarpus laetus</i>	20	•	•		•		☀	☀☁		•	
Wharangi	<i>Melicope ternata</i>	5	•		•	•		☀	☀☁		•	

COMMON/MAORI NAME	BOTANICAL NAME	Final height (m)	Wind	Frost hardy	Salt tolerant	Well-drained soil	Poorly-drained soil	Sun	Partial shade	Shade	Bee-friendly	Bird-friendly
<b>SHRUBS</b>												
Broom, common	<i>Carmichaelia australis</i>	2.5	•			•	•	☀️	☀️☁️		•	
Coprosma	<i>Coprosma rhamnoides</i>	1.5	•	•	•	•	•	☀️	☀️☁️			•
Coprosma	<i>Coprosma rotundifolia</i>	5				•	•		☀️☁️	☁️		•
Coprosma, swamp	<i>Coprosma tenuicaulis</i>	3		•		•	•	☀️	☀️☁️			•
Coprosma, thin leaved	<i>Coprosma areolata</i>	5				•		☀️	☀️☁️			•
Hangehange	<i>Geniostoma ligustrifolium</i> var. <i>ligustrifolium</i>	4			•	•			☀️☁️			
Hebe	<i>Hebe macrocarpa</i> var. ( <i>H. corriganii</i> )	2				•			☀️☁️		•	•
Heketara	<i>Olearia rani</i>	8				•			☀️☁️			
Horopito, lowland	<i>Pseudowintera axillaris</i>	7				•			☀️☁️	☁️		
Horopito, mountain	<i>Pseudowintera colorata</i>	3.5		•		•			☀️☁️			
Kanono	<i>Coprosma grandifolia</i>	6				•	•		☀️☁️	☁️		•
Karamu	<i>Coprosma robusta</i>	6	•	•	•	•	•	☀️	☀️☁️			•
Karamu, shining	<i>Coprosma lucida</i>	4	•	•		•	•	☀️	☀️☁️	☁️		•
Kawakawa	<i>Piper excelsum</i>	5	•		•	•			☀️☁️	☁️		•
Koromiko	<i>Hebe stricta</i> var. <i>stricta</i>	4	•	•	•	•		☀️	☀️☁️		•	•
Mapou / mapau / red matipo	<i>Myrsine australis</i>	6	•	•		•		☀️	☀️☁️			•
Mingimingi	<i>Coprosma propinqua</i>	6		•			•	☀️	☀️☁️			•
Mingimingi, prickly	<i>Leptecophylla juniperina</i>	2	•	•		•		☀️	☀️☁️		•	•
Mingimingi, tall	<i>Leucopogon fasciculatus</i>	2	•	•		•		☀️	☀️☁️		•	
Niniaio	<i>Helichrysum lanceolatum</i>	1.5	•			•		☀️	☀️☁️			
Ongaonga / tree nettle	<i>Urtica ferox</i>	2		•				☀️	☀️☁️			
Pate / seven finger	<i>Schefflera digitata</i>	8				•	•		☀️☁️	☁️		•
Poroporo	<i>Solanum aviculare</i>	4				•		☀️				•
Ramarama	<i>Lophomyrtus bullata</i>	7		•		•	•	☀️	☀️☁️	☁️	•	
Rangiora	<i>Brachyglottis repanda</i>	5				•		☀️	☀️☁️			
Raukaua	<i>Raukaua anomalus</i>	3		•		•		☀️				
Rohutu	<i>Neomyrtus pedunculata</i>	5		•		•	•	☀️	☀️☁️			•
Snowberry	<i>Gaultheria oppositifolia</i>	2	•	•		•		☀️				
Snowberry	<i>Gaultheria paniculata</i>	1	•	•		•		☀️	☀️☁️			
Snowberry, bush	<i>Gaultheria antipoda</i>	1	•	•		•		☀️	☀️☁️			•

COMMON/MAORI NAME	BOTANICAL NAME	Final height (m)	Wind	Frost hardy	Salt tolerant	Well-drained soil	Poorly-drained soil	Sun	Partial shade	Shade	Bee-friendly	Bird-friendly
Taurepo / NZ gloxinia	<i>Rhabdothamnus solandri</i>	4				•						•
Tree daisy, Coromandel	<i>Olearia townsonii</i>	5	•		•	•						
Toropapa / karapapa	<i>Alseuosmia macrophylla</i>	2		•		•	•					•
Totorowhiti	<i>Dracophyllum strictum</i>	2.5	•	•		•						
Turepo / small-leaved milk tree	<i>Streblus heterophyllus</i>	6	•			•						
Tutu	<i>Coriaria arborea</i>	6	•	•		•						•
<b>LIANES AND SCRAMBLERS</b>												
Clematis	<i>Clematis foetida</i>	6	•	•							•	
Clematis	<i>Clematis forsteri</i>	5	•	•							•	
Clematis, white / puawananga	<i>Clematis paniculata</i>	6	•	•							•	
Fern, jointed	<i>Arthropteris tenella</i>	0.4				•	•					
Fern, thread / climbing hard fern	<i>Blechnum filiforme</i>	0.4					•					
Kareao, supplejack	<i>Ripogonum scandens</i>	20									•	•
Keikei	<i>Freycinetia banksii</i>	15	•								•	•
Kohia, New Zealand passionfruit	<i>Passiflora tetrandra</i>	20	•								•	
Kotukutuku / fuchsia	<i>Fuchsia perscandens</i>	5	•								•	•
Mokimoki / fragrant fern	<i>Microsorium scandens</i>	0.4		•			•					
New Zealand jasmine	<i>Parsonsia heterophylla</i>	10	•		•						•	
Pohuehue / large-leaved muehlenbeckia	<i>Muehlenbeckia australis</i>	10	•		•	•						
Rata, climbing	<i>Metrosideros colensoi</i>	15	•			•					•	
Rata, climbing	<i>Metrosideros diffusa</i>	20	•								•	
Rata, climbing	<i>Metrosideros fulgens</i>	20	•								•	
Rata, white / akatea	<i>Metrosideros perforata</i>	20	•								•	
Tataramoa / bush lawyer	<i>Rubus cissoides</i>	10	•									•
Tataramoa / swamp lawyer	<i>Rubus australis</i>	6	•									•
Tataramoa / white-leaved lawyer	<i>Rubus schmidelioides</i>	10	•									•
<b>TREE FERNS</b>												
Katote / soft tree fern	<i>Cyathea smithii</i>	8		•		•	•					
Mamaku / black tree fern	<i>Cyathea medullaris</i>	20				•	•					
Ponga / silver tree fern	<i>Cyathea dealbata</i>	10				•						
Tree fern, gully / slender tree fern	<i>Cyathea cunninghamii</i>	20					•					

COMMON/MAORI NAME	BOTANICAL NAME	Final height (m)	Wind	Frost hardy	Salt tolerant	Well-drained soil	Poorly-drained soil	Sun	Partial shade	Shade	Bee-friendly	Bird-friendly
Wheki	<i>Dicksonia squarrosa</i>	8	•	•		•	•	☀	☀☁			
Wheki-ponga	<i>Dicksonia fibrosa</i>	10				•	•	☀	☀☁			
<b>FERNS AND FERN ALLIES</b>												
Blechnum	<i>Blechnum membranaceum</i>	0.2					•		☀☁	☁		
Bracken / rarauhe	<i>Pteridium esculentum</i>	2		•		•		☀	☀☁			
Filmy fern, much-divided	<i>Hymenophyllum multifidum</i>	0.1		•			•			☁		
Filmy fern, rough	<i>Hymenophyllum scabrum</i>	0.2		•		•	•			☁		
Filmy fern / matua mauku	<i>Hymenophyllum dilatatum</i>	0.2		•		•				☁		
Gully fern / piupiu	<i>Pneumatopteris pennigera</i>	1.5		•			•		☀☁	☁		
Hairy fern	<i>Lastreopsis hispida</i>	0.5		•		•			☀☁	☁		
Hen & chicken fern	<i>Asplenium gracillimum</i>	0.8		•		•			☀☁	☁		
Heruheru, Prince of Wales feathers	<i>Leptopteris superba</i>	1.2		•			•			☁		
Irirangi / pipiri / drooping filmy fern	<i>Hymenophyllum demissum</i>	0.1		•			•			☁		
Kidney fern / konehu / kopakopa / raurenga	<i>Cardiomanes reniforme</i>	0.2				•			☀☁	☁		
Kiokio, Green Bay	<i>Blechnum triangularifolium</i>	0.9		•	•				☀☁	☁		
Kiokio/ horokio	<i>Blechnum novae-zelandiae</i>	2	•	•		•		☀	☀☁			
Kiokio, swamp	<i>Blechnum minus</i>	1		•			•		☀☁	☁		
Kiwikiwi / kiwakiwa / creek fern	<i>Blechnum fluviatile</i>	0.5		•		•	•		☀☁	☁		
Kowaowao / paraharaha / hound's tongue	<i>Microsorium pustulatum</i>	0.4	•	•	•	•			☀☁			
Leather-leaf fern	<i>Pyrrosia eleagnifolia</i>	0.1	•	•	•	•		☀	☀☁			
Lindsaea	<i>Lindsaea trichomanoides</i>	0.4				•			☀☁			
Lindsaea	<i>Lindsaea viridis</i>	0.5		•			•			☁		
Maidenhair, common	<i>Adiantum cunninghamii</i>	0.4				•				☁		
Mata / water fern	<i>Histiopteris incisa</i>	1.5		•				☀	☀☁			
Mokimoki / fragrant fern	<i>Microsorium scandens</i>	0.4		•			•		☀☁	☁		
Nini / rereti / lance fern	<i>Blechnum chambersii</i>	0.2		•		•	•			☁		
Peretao / petako / Colenso's hard fern	<i>Blechnum colensoi</i>	0.9		•			•			☁		
Petipeti / piupiu / crown fern	<i>Blechnum discolor</i>	1.5		•		•	•			☁		
Pikopiko / hen & chicken fern	<i>Asplenium bulbiferum</i>	0.8		•		•			☀☁	☁		

COMMON/MAORI NAME	BOTANICAL NAME	Final height (m)	Wind	Frost hardy	Salt tolerant	Well-drained soil	Poorly-drained soil	Sun	Partial shade	Shade	Bee-friendly	Bird-friendly
Shield fern	<i>Polystichum neozelandicum</i> subsp. <i>zerophyllum</i>	0.5	•	•	•							
Single crape fern	<i>Leptopteris hymenophylloides</i>	0.5				•						
Smooth shield fern	<i>Lastreopsis glabella</i>	0.4		•			•					
Spleenwort, shining	<i>Asplenium oblongifolium</i>	0.5		•		•						
Spleenwort, sickle	<i>Asplenium polyodon</i>	0.5										
Sweet fern	<i>Pteris macilenta</i>	1.4			•	•						
Thread fern / climbing hard fern	<i>Blechnum filiforme</i>	0.4					•					
<b>GRASSES</b>												
Basket grass	<i>Oplismenus hirtellus</i> subsp. <i>imbecillis</i>	0.2	•	•		•	•					
Broad-leaved poa	<i>Poa anceps</i>	0.4				•						
Bush rice grass	<i>Microlaena avenacea</i>	0.5		•		•	•					
Slender rice grass	<i>Microlaena stipoides</i>	0.6		•		•						
Swamp millet	<i>Isachne globosa</i>	1	•		•		•					
Toetoe	<i>Austroderia fulvida</i>	3.5	•	•	•	•	•					
Toetoe	<i>Austroderia toetoe</i>	4	•	•	•	•	•					
<b>SEDGES</b>												
Baumea	<i>Machaerina articulata</i>	2			•		•					
Baumea	<i>Machaerina rubiginosa</i>	1.5	•	•			•					
Baumea	<i>Machaerina tenax</i>	2	•	•	•		•					
Hook sedge, caver's beard	<i>Uncinia ferruginea</i>	0.7	•	•		•						
Isolepis	<i>Isolepis distigmatosa</i>	0.2					•					
Isolepis	<i>Isolepis reticularis</i>	0.4	•		•		•					
Kuawa	<i>Schoenoplectus tabernaemontani</i>	2			•	•	•					
Kuta	<i>Eleocharis sphacelata</i>	1.5			•		•					
Machaerina	<i>Machaerina juncea</i>	1.5										
Maori grass	<i>Carex maorica</i>	1			•		•					
Mapere	<i>Gahnia setifolia</i>	3	•	•			•					
Mapere	<i>Gahnia xanthocarpa</i>	3.5	•	•		•	•					
Pukio	<i>Carex secta</i>	2	•				•					
Pukio	<i>Carex virgata</i>	2		•		•	•					
Rautahi	<i>Carex geminata</i>	1.2					•					



COMMON/MAORI NAME	BOTANICAL NAME	Final height (m)	Wind	Frost hardy	Salt tolerant	Well-drained soil	Poorly-drained soil	Sun	Partial shade	Shade	Bee-friendly	Bird-friendly
Rautahi	<i>Carex lessoniana</i>	1.5			•		•	☀️	☀️☁️			
Sedge, cutty	<i>Gahnia lacera</i>	0.7	•				•	☀️	☀️☁️			
Sedge, fine-leaved hook	<i>Uncinia banksii</i>	0.3		•		•		☀️	☀️☁️			
Sedge, forest	<i>Carex solandri</i>	1			•		•		☀️☁️			
Sedge, giant umbrella	<i>Cyperus ustulatus</i>	2	•		•		•		☀️☁️			
Sedge, hook / kamu	<i>Uncinia uncinata</i>	0.5	•	•		•	•		☀️☁️			
Sedge, sharp spike	<i>Eleocharis acuta</i>	1	•	•			•	☀️				
Sedge, slender spike	<i>Eleocharis gracilis</i>	0.4	•	•	•	•	•	☀️				
Sedge, Zotov's hook	<i>Uncinia zotovii</i>	0.7	•	•					☀️☁️	☁️		
Tuhara	<i>Machaerina sinclairii</i>	1.2		•	•	•	•	☀️	☀️☁️	☁️		
<b>RUSHES</b>												
Arrow-grass	<i>Triglochin striata</i>	0.4			•		•	☀️	☀️☁️	☁️		
Juncus	<i>Juncus prismatocarpus</i>	0.8					•	☀️				
Juncus	<i>Juncus usitatus</i>	1.2			•	•		☀️	☀️☁️			
Rush, dwarf	<i>Juncus pusillus</i>	2	•	•	•		•	☀️				
Rush, fan-flowered	<i>Juncus sarophorus</i>	1.5	•	•			•	☀️	☀️☁️			
Rush, giant	<i>Juncus pallidus</i>	2					•	☀️				
Rush, grass-leaved	<i>Juncus planifolius</i>	0.1	•	•			•	☀️				
Rush, leafless/ wiwi	<i>Juncus australis</i>	1.2		•			•	☀️				
Wiwi	<i>Juncus edgariae</i>	2	•	•			•	☀️				
<b>HERBS</b>												
Anaphalioides	<i>Anaphalioides subrigida</i>	0.4	•	•		•		☀️				
Anaphalioides	<i>Anaphalioides trinervis</i>	0.5				•	•		☀️☁️			
Hairy forest nertera	<i>Nertera villosa</i>	0.1				•			☀️☁️			
Harakeke/ flax	<i>Phormium tenax</i>	3	•	•	•	•	•	☀️	☀️☁️		•	•
Kakaha/ bush flax/ bush lily	<i>Astelia fragrans</i>	1	•	•		•	•		☀️☁️	☁️		
Kauri grass	<i>Astelia trinervia</i>	0.6	•			•			☀️☁️	☁️		
Parataniwha	<i>Elatostema rugosum</i>	0.5		•		•		☀️				
Raupo/ bullrush	<i>Typha orientalis</i>	3			•		•	☀️				
Red pond weed	<i>Potamogeton cheesemanii</i>											
Swamp astelia	<i>Astelia grandis</i>	2	•	•			•	☀️	☀️☁️			
Turner's daisy	<i>Brachyglottis turneri</i>	1.0				•	•		☀️☁️			

COMMON/MAORI NAME	BOTANICAL NAME	Final height (m)	Wind	Frost hardy	Salt tolerant	Well-drained soil	Poorly-drained soil	Sun	Partial shade	Shade	Bee-friendly	Bird-friendly
Turutu	<i>Dianella nigra</i>	0.5		•		•	•	☀️	☀️☁️	☁️		
Whaririki / mountain flax	<i>Phormium cookianum</i> subsp. <i>hookeri</i>	2	•	•	•	•		☀️	☀️☁️		•	•
Wood rose / pua o te reinga	<i>Dactylanthus taylorii</i>	0.1				•			☀️☁️	☁️		
<b>EPIPHYTES</b>												
Filmy fern / matua mauku	<i>Hymenophyllum dilatatum</i>	0.4				•			☀️☁️			
Green mistletoe	<i>Ileostylus micranthus</i>	1.5						☀️	☀️☁️			•
Kahakaha	<i>Astelia hastatum</i>	1	•	•	•	•		☀️	☀️☁️			
Kirk's kohuhu	<i>Pittosporum kirkii</i>	1	•			•		☀️	☀️☁️			
Kohurangi / Kirk's daisy	<i>Brachyglottis kirkii</i>	1.5	•			•		☀️	☀️☁️			
Lance fern	<i>Loxogramme dictyopteris</i>	0.3				•		☀️	☀️☁️			
Lily, perching	<i>Astelia solandri</i>	1	•	•	•	•		☀️	☀️☁️			
Puka	<i>Griselinia lucida</i>	10	•	•	•	•		☀️	☀️☁️			•
Rusty filmy fern	<i>Hymenophyllum frankliniae</i>	0.1		•		•		☀️	☀️☁️			
Spleenwort, hanging	<i>Asplenium flaccidum</i>	0.8		•		•			☀️☁️	☁️		
Spleenwort, sickle	<i>Asplenium polyodon</i>	0.5				•			☀️☁️	☁️		
Tawhirikaro	<i>Pittosporum cornifolium</i>	2.5	•		•	•		☀️	☀️☁️			•
<b>ORCHIDS</b>												
Hidden spider orchid / icky	<i>Corybas cryptanthus</i>	0.1				•			☀️☁️	☁️		
Easter orchid / raupeka	<i>Earina autumnalis</i>	0.5				•			☀️☁️	☁️		
Bamboo orchid / peka-a-waka	<i>Earina mucronata</i>	0.5				•		☀️	☀️☁️			



Silver beech (*Lophozonia menziesii*)

## Nationally threatened, at risk and regionally distinctive plants

If you are interested in planting any species which are nationally threatened, at risk or regionally distinctive, contact the Department of Conservation or the Biodiversity section of the Taranaki Regional Council. Information on these pages has been sourced from the websites of the New Zealand Plant Conservation Network, Taranaki Flora and the Department of Conservation. It represents a selection of the threatened plants found in the Matemateaonga Ecological District.



BILL CLARKSON

### *Turner's daisy* *Brachyglottis turneri*

A tall (up to 1 m) herbaceous daisy found in the Whanganui River gorge area. Most of the potential habitat for this species has not been rigorously surveyed and thus its distribution in the district may not be fully known.

This species could be introduced to river bank and stream bank shrubland.

**At Risk — Naturally Uncommon**



VAL SMITH

### *Hidden Spider orchid, Icky* *Corybas cryptanthus*

A seldom seen underground spider orchid, known from one location near the western edge of the district where it grows under manuka.

The plant is not visible for most of the year and may occur more widely in the district.

**At Risk — Naturally Uncommon**



VAL SMITH

### *Wood rose, pua o te reinga* *Dactylanthus taylorii*

Present in a small number of sites in the Matemateaonga Ecological District and adjoining districts, but because of its discrete nature its distribution may not be fully known.

*Dactylanthus* grows parasitically on the roots of native hardwood trees and shrubs such as broadleaf, five finger and kohuhu. It prefers damp but well-drained places and is often found at the head of small streams. It has been found at altitudes from near sea level to 1200 metres.

**Threatened — Nationally vulnerable**

## Plant species that are significant to the Matemateaonga Ecological District



VAL SMITH

### Green mistletoe, pirita

*Ileostylus micranthus*

A woody, epiphytic, hemiparasitic shrub only known from a small number of sites in the Taranaki Region.

It has been recorded growing on hawthorn shrubs on the Matemateaonga–Rangitikei boundary near Upokongaro.



PHIL BENDLE

### Coromandel tree daisy

*Olearia townsonii*

Generally only found on sedimentary hill country cliffs and banks amongst shrub land vegetation. The most significant populations, other than those in the Coromandel, occur in the Taranaki Region and the southernmost limits of this species occur in the Matemateaonga Ecological District.

Could be introduced to dry cliff/bluff shrubland.



BILL CLARKSON

### Waiwaka, swamp maire, maire tawake

*Syzygium maire*

Waiwaka is not threatened but some populations may be in slow terminal decline. It is a mid-successional species that is found in coastal and lowland forest in waterlogged ground and on the margins of swamps and streams.

This species could be introduced to swamp forest and semi swamp forest.



BILL CLARKSON

### Tawhirikaro

*Pittosporum cornifolium*

Found most commonly as a late successional epiphyte in lowland forest with an uncommon growth form, as a shrub epiphyte.

Tawhirikaro could be introduced to kahikatea–pukatea swamp and semi-swamp forest, tawa forest and tawa–kamahi forest.



BILL CLARKSON

### Broadleaved five finger

*Pseudopanax laetus*

A spreading shrub/small tree up to 5 metres in height that is found naturally from Coromandel to Taranaki in forest margins and open scrub on sedimentary hill country. In the Matemateaonga district it reaches its natural southern limits and is fairly uncommon. Because this species is heavily browsed by goats it is often restricted to epiphytic growth on tree ferns, or on steep cliffs out of their reach.

Broadleaved five finger could be introduced to dry cliff/bluff shrubland, particularly where cliffs merge with small ledges, or become less extreme.

# Taranaki nurseries that eco-source their stock

## Atawhai Nursery

765 Carrington Road, RD 1, New Plymouth 4371  
Phone: 06 753 3306

## Huatoki Native Plant Nursery

4 Camden Street, New Plymouth 4310  
Phone: 06 753 5811

## Kii Tahī Nursery and Land Care

Lower Kaharoa Road, Patea 4597  
Phone: 06 273 6000/ 027 247 9723  
www.kiitahi.co.nz

## Landscape Essentials

15 Albert Street, Hawera 4610  
Phone: 06 278 8261

## Moturoa Primary School

Pioneer Road, New Plymouth 4310  
Phone: 06 751 0392

## New Life Nursery

183 Tasman Street, Opunake 4616  
Phone: 06 761 8067

## Te Kahuri Nurseries

510 Eltham Road, Mangatoki 4391  
Phone: 06 764 5020 [www.tekahurinurseries.co.nz](http://www.tekahurinurseries.co.nz)

## St Josephs Primary School

Whitcombe Road, Opunake 4616  
Phone: 06 761 8388

## Taranaki Regional Council Nursery

c/o The Land Management Section,  
Taranaki Regional Council,  
Private Bag 713, Stratford 4352  
Phone: 06 765 7127

## Woodleigh Nursery

300 Mountain Road, RD 3,  
New Plymouth 4373  
Phone: 06 752 0830 / 021 072 7394  
[www.woodleigh.co.nz](http://www.woodleigh.co.nz)

*You will need to order less common, threatened or rare plants up to two years in advance because seed or cuttings have to be collected, and the plants grown.*

## Sources of further information

### Department of Conservation



Ngāmotu/ New Plymouth Office  
55A Rimu Street  
PO Box 462, New Plymouth 4340  
06 759 0350  
newplymouth@doc.govt.nz.  
[www.doc.govt.nz](http://www.doc.govt.nz)

### Dune Restoration Trust of New Zealand



Manners Street  
PO Box 11302  
Wellington 6142  
04 889 2337  
[info@dunetrust.org.nz](mailto:info@dunetrust.org.nz)

### Landcare Research Manaaki Whenua



Detailed information on New Zealand flora including:  
ethnobotany, plant systematics, pollination and weeds.  
[www.landcareresearch.co.nz](http://www.landcareresearch.co.nz)

### New Zealand Fish & Game



Taranaki Senior Field Officer: Allen Standliff  
PO Box 662  
New Plymouth 4340  
06 757 9676  
[taranaki@fishandgame.org.nz](mailto:taranaki@fishandgame.org.nz)

### New Zealand Plant Conservation Network



Comprehensive information about New Zealand plants.  
[www.nzpcn.org.nz](http://www.nzpcn.org.nz)

## QE II National Trust



Taranaki Regional Representative:  
Neil Phillips 06 753 6433  
[www.openspace.org.nz](http://www.openspace.org.nz)

## National Wetland Trust of New Zealand



Information on the protection and restoration of wetlands.  
<http://www.wetlandtrust.org.nz>

## Royal Forest & Bird Protection Society of New Zealand



North Taranaki: Chairperson, Janet Hunt  
[Northtaranaki.branch@forestandbird.org.nz](mailto:Northtaranaki.branch@forestandbird.org.nz) | 06 756 9165  
South Taranaki: Chairperson, Dave Digby  
[Southtaranaki.branch@forestandbird.org.nz](mailto:Southtaranaki.branch@forestandbird.org.nz) | 06 765 7482  
[www.forestandbird.org.nz](http://www.forestandbird.org.nz)

## Taranaki Flora



Aims to be a one-stop shop for accessible information  
on the flora and vegetation of the Taranaki region.  
[www.taranakiflora.co.nz](http://www.taranakiflora.co.nz)

## Taranaki Regional Council



47 Cloten Road, Private Bag 713, Stratford 4352  
06 765 7127  
[www.trc.govt.nz](http://www.trc.govt.nz)  
The TRC provides information on biodiversity and sustainable  
land management.

## Wild for Taranaki



The trust was established in 2015 by 19 organisations involved  
in the protection of native plants, animals and ecosystems in  
Taranaki. [www.wildfortaranaki.nz](http://www.wildfortaranaki.nz)

## Weedbusters



Comprehensive and detailed information about weeds in  
New Zealand, including how to control them.  
[www.weedbusters.org.nz](http://www.weedbusters.org.nz)

## The Taranaki Tree Trust

The Taranaki Tree Trust was a charitable trust dedicated to the protection and enhancement of the region's ecosystems and landscapes. It was in operation for 23 years, from 1992 until 2015. The work of the trust was supported by Taranaki Regional Council and the Honda NZ Tree Fund. During its lifetime the trust provided financial support to hundreds of planting projects around the region.

The Karl Reipen Trust has also been a major supporter of the project, donating \$10,000 for the planting of native plants.

As a result thousands of native plants were planted for the benefit of our community and the environment on both private and public land. The trust facilitated numerous community projects; Herekawe Stream Walkway restoration, Living Legends Rugby World Cup 2011, Hutiwai Whitebait Habitat protection, and community planting days.

In 2012 the trust, with the assistance of the University of Waikato, began publication of a series of Restoration Guides which cover the five Ecological Districts in Taranaki. This is the third volume in the series.

## Thanks

The Taranaki Tree Trust thanks the many people who have contributed to this booklet: Professor Bruce Clarkson, Rebecca Bylsma and Catherine L. Kirby from the Environmental Research Institute, University of Waikato; Donna Worthy and Jim Clarkson from DOC Ngāmotu office; Bill Clarkson, Barbara Hammonds, Janet Hunt; Leigh Honnor, Halema Jamieson and Taranaki Regional Council staff.

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*Taranaki  
Tree Trust*



## Photo credits

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Individual photographs are also credited in situ on the bottom right hand corner.