Living Heritage

Growing Native Plants in Nelson

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Cover illustration: black beech, mataī and soft tree fern, a common forest type in the Māītai catchment

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Foreword

Looking at our lush city, it is easy to see that Nelson people have a passion for gardening. We know what it takes to prepare the soil, to sow the seed, to nourish and nurture.

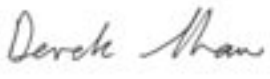
This enthusiasm will need to be harnessed if Nelson is to protect, enhance and care for the variety of plant and animal life that naturally occurs in this area.

Our biodiversity is precious, but the plant and animal species which would naturally live on land close to the coast are particularly vulnerable because there are so few remaining undeveloped places where they are free to flourish.

Success depends on the active involvement of people and their organisations. It relies on people understanding and valuing our biodiversity. This guide can help us to understand the different aspects of Nelson's biodiversity from the coast to the hill country.

This guide is a tool for all of us to use when we make our planting choices in our gardens and larger areas. Both Nelson City Council and Department of Conservation will be using it in their roles as landowners and conservation advocates. The information contained in this guide needs to be used alongside access to locally-sourced plants, and control of weeds and other pests. Then Nelson will be able to express pride in its own character through its vegetation and its animals.

If we can do that, we will be able to identify more closely with our natural heritage and our environment will flourish.



Neil Clifton

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Nelson City Council

Introduction

There is very little lowland and coastal vegetation remaining in Nelson. The small remnants that are left are generally isolated from each other by pasture, exotic forests, urban areas and roads. It is only in the colder uplands of the Bryant Range behind Nelson that larger areas of native vegetation are still found. But most of the species and habitats of the warmer lower altitudes cannot survive in these uplands.

The loss and fragmentation of the lowlands – illustrated in Appendix 1 – has resulted in habitats that are too small to function healthily and maintain their integrity and viability. Animal and plant populations are often too small for long-term survival – many native species have already become extinct in Nelson. By linking and expanding the remaining natural areas and by creating new ones, we can provide suitable habitat for the re-establishment of our lost fauna and flora, as well as improve the chances of survival of what remains of Nelson's own natural ecosystems and their native inhabitants.

The purpose of this guide is to encourage gardeners, owners of larger properties, community groups, iwi, schools, landscape professionals and nurseries to help restore the native vegetation that is unique to Nelson. This guide concentrates on the Nelson lowland, coastal and wetland ecosystems – those most in need of restoration.

'New Zealand's most low lying country, estuaries and tidal inlets, has become its most altered ... it is our destiny as a country to continually revisit the past. And keep alive a sense of native plants, soils, climatic cycles and life forces as necessary ingredients of how we actually live.' (Geoff Park)

Area covered by the guide

The area mapped by this guide only covers land for which Nelson City Council is responsible. This extends from Champion Road northwards to Cape Soucis and inland to the lower slopes of the Bryant Range in Mount Richmond Forest Park. This is the area shown on the maps. The plant lists do not include any of the mineral belt or upland plants of the Bryant Range.

A separate vegetation guide is being prepared for the Tasman District Council area, which covers Richmond, Tasman Bay, Golden Bay and Buller.

Please note that all woody plants naturally occurring in Nelson have been listed, but the only ferns and non-woody plants (grasses, rushes, sedges and herbs) listed are those that are suitable for restoration planting.

The watermark appearing throughout the guide is a sprig of fruiting matai (*Prumnopitys taxifolia*). This conifer belongs to the ancient podocarp family which it shares with some of our largest native trees. Originally, matai would have been very common in the Nelson City area, and it is still found occasionally in the hinterland.

The name Māitai, referring to the river which flows through Nelson City, was originally given to one particular matai which once grew on the bank of the river.

Why Grow Native Plants?

Enjoyment

- To make gardening easy. The plants native to this area have already adapted to Nelson's climate and soils so they grow well here.
- To attract native birds to your place.
- To ensure our largest and slowest growing native trees such as mataī and kahikatea are perpetuated for future generations to enjoy. By planting them now, future generations can experience the mana and the special qualities that old trees have.
- To improve the appearance and interest of gardens as there are many attractive native plants.
- To have the satisfaction of knowing you are doing your bit to ensure a wide variety of plants that are native to Nelson, and their habitats, continue to thrive here.

Appreciation

- To learn about and appreciate the seasonal and life cycles of native plants such as their flowers, fruits, and the wildlife they attract.
- To get to know the range of native plants that gave Nelson its original natural character.
- To let those plants and animals that belong in this place live here again.
- To increase our own sense of belonging by being involved with the plants and animals that evolved here.

'A sense of place is a fundamental human need. When poets, painters and novelists compress a sense of place into its essence, it is inevitably that connection between people and the land's non-human life.' (Geoff Park)

Conservation

- To enrich Nelson's natural ecosystems of plants and animals.
- To provide shelter and food for native birds and other animals as well as creating habitats in which other native plants naturally grow and perpetuate themselves.
- To retain and regain Nelson's unique and distinctive natural character.
- To protect the unique qualities of Nelson plants by growing from local seed sources.
- To help save rare species from extinction and re-establish those species that are locally extinct.
- To help recreate natural vegetation patterns in the landscape.

Nelson's Original Ecosystems – A Vegetation Continuum

BOULDER BANK AND ISLETS ECOSYSTEM
The Nelson Boulder Bank is a unique feature of the Nelson coastline. The shrub and tussock vegetation growing there must tolerate the dry and exposed maritime nature of this habitat.

DUNES ECOSYSTEM
Native sand dune communities are now extinct within the Nelson City Council area but a handful of individual native plants remain. These are being used to restore the dunes at Tahunanui.

FRESHWATER WETLANDS ECOSYSTEM
Fertile swamps have largely disappeared from the Nelson City Council area due to drainage. Swamps support a variety of ferns, grasses, sedges, rushes, reeds and flax and provide an important habitat for wildlife.

COASTAL FLATS ECOSYSTEM
This is another ecosystem that is almost extinct in Nelson. The fertile flats of the Central Nelson City and Tahunanui-Stoke areas used to be covered with these types of forest as well as the terraces around the Nelson Haven, Wakapuaka, Delaware Bay and Whangamoa River mouth. Paramata Flats reserve at Delaware Bay is an example of this vegetation type.

ESTUARIES ECOSYSTEM
Estuaries extend from Nelson city to the Whangamoa River mouth. A variety of specialised shrubs, grasses, sedges, rushes and herbs live in the salt marshes that fringe these estuaries and must tolerate variable amounts of tidal inundation and saltwater concentrations.

LOWLAND HILL COUNTRY ECOSYSTEM
These vegetation types occur on inland hill slopes sheltered from coastal influences and below 600 metres. It is the largest ecosystem in the Nelson City Council area and is mainly beech forest with podocarps and broadleaved trees such as rimu and tawa. Examples exist at Gentle Annie, Whangamoa Saddle and within or adjoining lowland parts of Mt Richmond Forest Park.

LOWLAND FLATS ECOSYSTEM
This ecosystem includes forests on flats and terraces associated with river systems away from the coast. They are often sheltered and subject to winter frosts. Parts of the Māītai Valley are representative of these vegetation types, of podocarps such as kahikatea, tōtara and mataī emergent over a canopy of beeches and broadleaved species. Distinctive forest and shrubland communities occur along the margins of waterways which include hebes and southern rātā.

FLOODPLAIN ECOSYSTEM
This is a special part of the lowland flats ecosystem. These flats are lower lying and more prone to flooding than higher river terraces, and generally have deep silty soils that have been deposited by rivers. As well as podocarps, and instead of beech, these forests support kōwhai, lowland ribbonwood and narrow leaved lacebark. These forests are now extinct in Nelson.

COASTAL HILL COUNTRY ECOSYSTEM
Coastal hill country has a maritime influence and is defined as seaward-facing slopes up to the first major ridgeline. The vegetation it supports is exposed to salt spray but enjoys a mild climate. The best remaining examples lie between Delaware Bay and Cape Soucis.

‘Animals and plants are part of a country’s heritage; they are the result of millions of years of evolution in a particular place; they are at least as valuable as language or culture.’ (Edward O. Wilson)

How to use this guide to choose plants

For the purposes of this guide the Nelson landscape has been divided into eight main ecosystems. These are shown on the ecosystem map (pages 16-17). These ecosystems reflect the natural patterns of the various types of natural vegetation that originally covered Nelson City and the surrounding area. Each ecosystem is home to a particular set and mix of native plants that is unique to Nelson.

The first step in choosing the right native plants is to find on the ecosystem map the place where you will be planting (pages 16-17).

For example, if your garden is near the beach in Tahunanui, your ecosystem type is characterised as coastal flats and alluvial terraces, coloured on map as teal.

Or, if you lived on the valley floor of Todds Valley, your ecosystem is characterised as lowland flats and alluvial terraces, coloured on map as light green.

Once you have identified which ecosystem your site is part of, you can refer to the plant list for that ecosystem which tells you the range of plants that grew there originally and are potentially suited to your site. Note that while the maps show well-defined boundaries between ecosystems, in real life the change from one ecosystem to another may be more gradual. Each ecosystem is briefly described on pages 18-20.

When choosing species consider whether you are looking for pioneer plants (for an open site) or for older stage vegetation for an established site. You will also need to know how sunny or shady the site is, and how dry or wet the soil is. Whether you want to attract native birds, or grow plants to heights suitable for your site or garden, may be other considerations.

All of this information about each species is tabulated on each ecosystem list as in the following example:

KEY

PLANTING RATIO
relative proportions of plants
■■ = plant commonly
■ = plant less commonly

PLANT PREFERENCES
■ = prefers or tolerates
1/2 = prefers or tolerates some
□ = intolerant of
s = some salt water tolerance
1= frost hardy
2 = semi-frost hardy
3 = frost tender

TYPE OF FOOD PROVIDED FOR BIRDS & LIZARDS
F = Fruit/seeds
N = Nectar
B = Buds/foliage
I = Insects

Trees

What to plant / Botanical name	Māori and/or common name	Planting Ratio		Plant Preferences						Max Heights	Food Type	Notes
				Wet	Moist	Dry	Sun	Shade	Frost			
		Early Stage	Later Stage									
Dacrycarpus dacrydioides	kahikatea, white pine	■	■■	■	■	□	1/2	1/2	1	60m	F, I	

Wet/moist/dry requirements

If you can easily dig a hole as deep as a spade (40cm or so) and the ground is free draining and crumbly (friable) with only a few stones, then you have a good, versatile soil that will allow you to choose from the full range of plants listed for that area. If you strike a lot of large stones or sand then you should be looking at species that are known to tolerate dry conditions. The lists also indicate which plants require or can tolerate permanently or frequently wet areas. Due to the seasonal waterlogging of clay soils, they may not be suitable for plants that cannot tolerate wet conditions.

Sun/shade requirements

The lists include plants' requirements or tolerance of sun and shade. Give them what they need and they will be more likely to thrive.

Seedlings and saplings of older growth species (planted at the "later" stage) require shade for establishment (hence the "nurse cover" prerequisite), and when the adults of these species are fully established they are canopy trees in full sun.

If planting into full sun, make sure plants are adequately watered until established. If you buy plants from a shady part of a nursery, get them used to sun gradually, and don't plant in full sun until they look leathery and robust.

Heights of trees

Maximum heights of trees are included on the lists. The beeches: black beech, hard beech, red beech, silver beech; the podocarps: rimu, miro, mataī, kahikatea, tōtara; and the broadleaved trees tawa and hinau can get BIG and grow for hundreds of years, so think carefully about what you plant beside your house, your neighbour's house, your boundary or near power lines. They are best suited to larger scale restoration initiatives. Some of these big trees are very slow growing, so while you can admire them in their interesting juvenile forms, it'll be future generations that will enjoy them at maturity. You can plant them in your lifetime for future generations to inherit.

If space is limited it can be far better to plant a small tree or shrub that can grow to its full size and proper shape than plant a larger growing tree that has to be constantly pruned and consequently may become misshapen and prone to disease as well as being a source of friction between neighbours if it overshades their property.

The maximum heights specified are very dependant on local soil and climatic conditions, and if in doubt seek local professional advice. It's a shame to have to cut down a tree in its prime because it has outgrown its site.

Food for birds, insects, lizards

These lists indicate the type of food provided by each plant species to sustain native birds and lizards. These include fruit, nectar, buds and foliage, and insects. Native vegetation provides cover, breeding and nesting places, and food for native birds, lizards and insects. Our larger native birds such as tūī and bellbird prefer fruit from native plants over exotic plants. They are also the only effective seed dispersers for some of our native trees. Numerous species of native insects can only complete their life cycle on specific kinds of native plants. Insects which are attracted to our native plants are also an important food resource for birds and lizards.

Establishment Stages

'...every bit of land, agricultural, urban, suburban, is as the poet Gary Snyder says, part of the same territory – never totally ruined, never completely unnatural. Always restorable ... the survivors are in our hands.' (Geoff Park)

Restoration is a long term process involving several stages. These stages mimic nature. On open ground, start with pioneer species then progress to the species that make up mature forest vegetation.

Early Stage planting

Pioneer (or early stage) species grow well in the open and their relatively fast growth suppresses weeds upon closure of the canopy. They also act as a "nurse" cover as they create a microclimate suitable for later additions of other, important older stage plants, and attract birds which may further encourage natural seeding of other native species. Some exotic species such as gorse and tree lucerne can also act as a nurse cover.

Native pioneer plants are shown in the lists, in the column headed "Early Stage". The relative proportions of each species are also shown. These vary depending on the ecosystem type and the establishment stage.

Later Stage planting

Species which are the dominant components of mature forest usually cannot be planted initially. These species need shade to establish and can only be planted once you have established some initial cover using pioneer species, as mentioned above. Later stage species typically include the tallest and longest lived of our forest trees as well as a set of understorey shrubs, ferns and ground cover herbs that need a canopy overhead to thrive.

These species are shown in the lists in the column headed "Later Stage". Again, the relative planting proportions of each species are shown for each ecosystem.

Refer to Tim Porteus' *Native Forest Restoration* guide for more detail.

Planting Advice

Eco-sourcing

Ecosourcing is one of the most important principles of native vegetation restoration. It involves the practice of only using native plants that have been sourced locally from the wild for local revegetation plantings. This includes plants grown from seeds or cuttings that have been collected locally from the wild.

It is important to eco-source for three reasons. Firstly, it avoids the risk of planting species which are not native to Nelson City, such as karo, North Island lacebark (*Hoheria populnea*), pōhutukawa*, rewarewa and northern rātā. Some of these species are invasive and may spread into the wild thereby changing the nature of our indigenous plant communities. Such plants will also seriously undermine the purpose of many native revegetation initiatives – to recreate a piece of original Nelson.

Secondly, it maintains the distinctness of our own local flora. For many species, the appearance, physiology and genetic make-up vary considerably throughout their range in New Zealand. This is true for several commonly used revegetation plants such as kōhūhū, lemonwood, flax, cabbage tree, kōwhai, mānuka, kānuka and akeake. Many of the distinct local Nelson forms are confined to this area. Local revegetation initiatives are compromised by using different forms from other parts of New Zealand or from unknown origins as it increases the risk of interbreeding with local populations, thereby watering down Nelson's own distinctive wild forms.

The third reason for using locally sourced stock is that, by virtue of their long lineage in Nelson, our local native wild plants are very well adapted to Nelson's environmental conditions. They are, therefore, the best-suited genetic stock for revegetation plantings as they will perform better in Nelson conditions than stock from other sources.

So, as a general principle, when buying or growing native plants for revegetation purposes, use stock that has been sourced as close to the revegetation area as possible, so as to maintain and restore Nelson's own unique natural heritage.

* Pōhutukawa was brought to the top of the South Island by iwi and they consider it to now be native to this area. There are self-seeding pōhutukawa on islands in the Marlborough Sounds which have obviously been planted by Māori. There is no such evidence of pōhutukawa plantings by early Māori in Nelson.

The best time to plant

The best time to plant is in autumn/winter after the rain has been about for a while. This lets the ground soak in a bit of water that will help the plants properly establish before the next summer. However, you can plant at anytime as long as the ground is easy to water, the area around the newly planted vegetation is kept moist until the plants establish, and the potted plants are properly "hardened-off" before planting, to minimise planting shock.

At sites where frosts are likely, planting in late winter or spring is best, but you may need to water the plants throughout summer. Mulching, which helps soil to retain moisture, will also help plants to survive at any time of the year, especially on open sites.

How much space to leave between plants?

The following is a general guide for specimen plantings in gardens or for stage 2 understorey planting once a nurse cover is established. If buying from a nursery also check with the staff.

It is important to get the right spacings between plantings for a variety of reasons. This distance will change depending on the eventual size of the natives being planted, what they are being planted for (revegetation or garden landscaping), and on the stage of the revegetation project.

Early Stage Plantings The main purpose of these pioneer species is to quickly create cover to suppress weeds and to allow favourable conditions for the next stage of planting. It is therefore important to plant densely enough so that canopy closure is achieved within 3-5 years. Plants should be planted at between 1-1.5 metres on sites with good growing conditions. On harsher sites, such as those that are dry, exposed or with poor soils, plants should be less than 1 metre apart so as to minimise losses by providing group shelter, as well as to minimise the size of gaps left by any that may die.

A related consideration for early stage plantings of revegetation projects is the minimum size and shape of the area to be planted. It is important that the area is at least 4 metres wide in any direction (i.e. 5 plants wide at 1 metre spacings) to minimise light penetration from the edges. Any narrower, and shading and weed suppression will not be effective.

Later Stage Plantings The main purpose of this stage is to establish what will become the final forest, typically comprising large, long-lived trees. Therefore, these trees should generally be planted at spacings greater than 5 metres, but with a degree of planting randomness, with the aim of trying to imitate the natural spacings of canopy trees in old-growth forests. Understorey shrubs, climbers, ferns and ground covers can be planted at any density under the nurse cover, again with a degree of randomness so as to create a natural appearance. If your nurse cover is providing the right conditions, you may not need to plant a large number of each of these later stage species, as in time they should be seeding and recruiting naturally. They will then create their own spacings!

Garden Plantings Landscape design becomes an important factor in deciding spacing of native plantings. Also, the often confined space of home gardens can be a limitation to growing many of the larger native trees. It is in these situations where spacing can be more tailored to personal preference. Useful height and spacing information may be provided with plants purchased from nurseries. Otherwise, as a general guide, the larger specimen trees should be greater than 5 metres apart, shrubs and tree ferns 1-2 metres apart, ferns, grasses, sedges and rushes about 3 per square metre (about 30 cm apart) and ground covers around 1 metre apart.

Where to get your native plants

The best and cheapest option is to grow your own plants from seeds and cuttings collected locally from the wild.

The following nurseries stock a wide range of plants native to Nelson:

- Nikau Gardens (Nayland Road South, Nelson)
- Titoki Nursery (Palmer Road, Brightwater)
- Mitre 10 (Bridge Street, Nelson)
- Down To Earth (Tahunanui Drive, Nelson)
- Bay Nursery (Bateup Road, Richmond)
- Goldpine Garden Design (Gladstone Road, Richmond)
- Robinsons Garden Centre (Main Road Stoke, Nelson)
- Saxton Road Nursery (Saxton Road, Nelson)
- The Warehouse.

Unfortunately, few nurseries and plant centres sell native plants that have been grown from locally sourced seed or cuttings. Plants which are grown from wild native plants occurring locally help maintain the genetic integrity of the ecosystem of which they are a part. (See ecosourcing section of the guide, on page 13.) Ask the nursery if your plants have been sourced locally. You may also be able to get nurseries to grow plants from seed or cuttings you have collected locally, to ensure plants are from the right source.

The Nelson Saturday market is a great source of cheap native plants. Again, ask if they've been sourced locally.

Site preparation, planting and maintenance tips

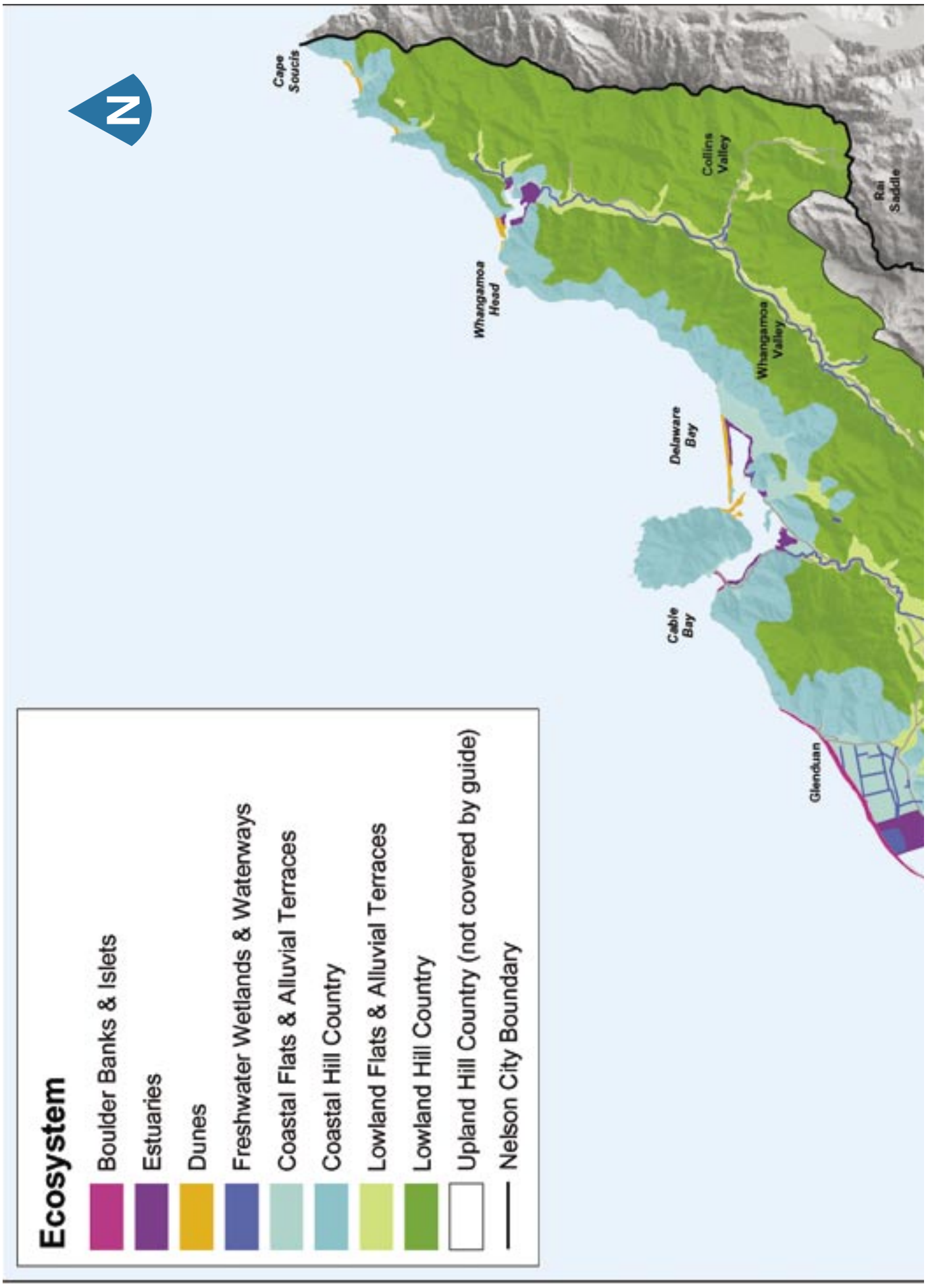
1. Remove from the site all weeds that are likely to prevent growth and establishment of plantings. Often these cannot be removed easily once the site is planted up.
2. Avoid planting shock of new plantings by gradually hardening them off to the environmental conditions of the revegetation site a few weeks before planting out.
3. Plant at the coolest times of the day, preferably evenings, on overcast days or when there is rainfall predicted.
4. Deep-water plants before planting by immersing planter bags to fully wet the potting mix.
5. Remove all ground vegetation on the soil surface at least out to the drip zone of the plants to be planted. Your plants will grow faster if there is no competition for water, soil nutrients and light.
6. Work the soil in the planting hole well beyond the size of the planter bag to allow good root development.
7. Planting holes dug in clay (usually on hillslopes) require side drainage to prevent water ponding and root-rot.
8. Don't pull the plant out of the bag by its stem. Cut the bag or turn the plant upside down and carefully remove to minimize root damage.
9. Plant deep enough so as to ensure all roots are covered, and avoid burying the stem below the soil line in the pot.
10. Water plants in well directly after planting.
11. Mulch around the base of your plants out to the drip line to keep the root zone weed-free, and to keep the soil well-conditioned, cool, moist and insulated – especially at hot and dry sites. Good mulch materials include straw, leaves, compost, grass clippings, seaweed and newspaper.
12. Stake plants as soon as they are planted so they

are easy to find, especially for weeding maintenance later on.

13. Avoid planting on windy days.
14. Avoid planting on dry sites during summer.
15. Where severe frosts are likely, plant frost-sensitive plants on north-facing slopes or beneath trees.
16. For shelter at windy sites, first establish wind-tolerant plants or construct a wind-break.
17. Avoid planting in straight rows – this will make the planted area look more natural.
18. Plant in clusters so that plants shelter one another as they grow.
19. If needed, water plants regularly until they are well-established.
20. Keep plants free of weeds until they are able to do this themselves with canopy closure. Ongoing mulching will achieve this.

'Smear a handful of forest soil between your fingers and feel how much of it is organic and how little is clay or silt and sand.

'Then cross back over the fence and feel the pasture's soil. Straightaway you notice how difficult it is to pick up and how compact it is between your fingers.' (Geoff Park)


N
Cape Soucis
Collins Valley
Rai Saddle
Whangamoa Head
Whangamoa Valley
Delaware Bay
Cable Bay
Glenduan
Ecosystem
Boulder Banks & Islets
Estuaries
Dunes
Freshwater Wetlands & Waterways
Coastal Flats & Alluvial Terraces
Coastal Hill Country
Lowland Flats & Alluvial Terraces
Lowland Hill Country
Upland Hill Country (not covered by guide)
Nelson City Boundary


ECOSYSTEMS OF NELSON CITY
MARLBOROUGH DISTRICT
TASMAN DISTRICT
Teal Valley
Lud Valley
Maitai Dam
Atawhai
Maitai Valley
Brook Valley
Nelson City
Marsden Valley
Aniseed Valley
Tahunanui
Stoke
Airport
Richmond

The different ecosystems described

Ecosystems of the Nelson City Council Area

Boulder Bank and islets ecosystem

The Nelson Boulder Bank is a unique feature of the Nelson coastline and provides habitat for a distinct ecosystem, which is also typical of offshore islets. Much of the Boulder Bank vegetation is now highly modified with the influx of introduced weeds. The natural components of this low-statured vegetation feature ngaio, coastal porcupine shrubs, tauhinu, scrambling pōhuehue and silver tussock. These are well suited to tolerate the dry and exposed nature of this habitat.

Estuaries ecosystem

The estuary ecosystem is a prominent feature of the coastal ecology of the inlets between Nelson City and the Whangamoa River mouth. The salt marshes that fringe these estuaries provide a habitat for a variety of shrubs, grasses, sedges, rushes, in particular shore ribbonwood, estuary needle grass, three square sedge, lake clubrush, sea rush, jointed rush, sea celery, coastal buttons, shore primrose and remuremu. These tolerate variable amounts of tidal inundation and saltwater concentrations, some preferring brackish water.

Dunes ecosystem

Intact sand dune communities are now extinct within the Nelson City Council area. A handful of individual native plants in a few localities is all that remains. Originally species such as spinifex, pīngao, sand sedge and sand tussock dominated the fore dune vegetation prior to the introduction of marram grass. The more stable rear dunes would have had a cover of umbrella sedge, akeake, tauhinu, whaririki, toetoe and scrambling pōhuehue.

Freshwater wetlands & waterways ecosystem

Lowland and coastal freshwater wetlands, particularly fertile swamps, have largely disappeared from the Nelson City Council area. A variety of ferns (e.g. kiokio and swamp kiokio), grasses (e.g. toetoe), sedges (e.g. pūkio, pūrei and giant cutty sedge), rushes (e.g. giant rush), and reeds (e.g. raupō) are characteristic of this vegetation type. Trees and shrubs are confined to those that can tolerate frequent fresh water inundation. These include kahikatea, pukatea, swamp maire, cabbage tree and mānuka. Swamp forest is one of our most threatened

habitats. This ecosystem includes areas that are frequently flooded along waterways.

Coastal flats ecosystem

The original localities for this vegetation type include the central Nelson City and Tahunanui areas as well as the terraces around the vicinities of Nelson Haven, Wakapuaka, Delaware Bay and Whangamoa River mouth. Almost no vegetation remains and what is left is highly modified. On free-draining sites such as those in the Tahunanui area where the underlying substrate is sandy, prominent emergent and canopy species include titoki, māpou, tawa, tōtara and mataī. Understorey trees include māhoe, kawakawa, kaikōmako and pigeonwood. Karaka is present on frost-free sites close to the coastline. On damper sites where drainage is limited species such as nīkau, pukatea and kahikatea

become abundant. On deltas and floodplains kōwhai, lowland ribbonwood and narrow-leaved lacebark would have been common.

Coastal hill country ecosystem

Coastal hill country forest is generally confined to seaward-facing slopes up to the first major ridgeline, although this is dependent upon the proximity to the coastline, the altitude of the first major ridgeline, and any other topographic barriers which may be present (e.g. coastal cliffs). Common canopy and emergent species on good soils include mataī, kohekohe, tawa, tītoki and nikau. Understorey trees include kawakawa, pigeonwood, māhoe, māpou, kaikōmako and puka. Nīkau is common on damp, shady sites. On drier ridges with poorer soils black beech, hard beech, rimu, kanuka, akiraho, ngaio and akeake are present. The shrublands on the most extreme coastal slopes are dominated by kanuka, ngaio, akeake, tauhinu, taupata and puka. The best remaining

examples lie between Cable Bay and Cape Soucis although most remnants are reduced and modified compared to their original extent and condition.

Lowland flats ecosystem

There are very few remaining examples of original old growth forest vegetation on lowland flats and alluvial terraces, and those that do remain are generally small, highly modified fragments of what was once a widespread vegetation type. Podocarp species such as kahikatea, tōtara and mataī are often emergent over a canopy which also features black beech, silver beech and broadleaved species such as pukatea, tawa, tītoki, pōkākā, kaikomako, pigeonwood and mahoe.

In damp shady areas tree fuchsia, nīkau, raurekau and seven finger become common. Species which are more abundant on flood-plains and deltas include lowland ribbonwood, kōwhai and narrow-leaved lacebark. Those that are largely confined to the riparian zone along the main rivers include southern rātā, tānekaha and kōwhai.

Lowland hill country ecosystem

This vegetation type occurs on hill slopes sheltered from coastal influences by aspect, altitude or physical barrier. Natural remnants remain on both conservation land and private land most notably around the Gentle Annie, Whangamoa Saddle and within or adjoining lowland parts of Mt Richmond Forest Park.

Mataī – black beech forest is common on lower slopes, with red beech becoming dominant on upper slopes where there is good soil. Gullies typically have broadleaved forests of tawa, māhoe, pigeonwood and tree fuchsia while ridges are covered in hard beech forest. Trees which are common associates of these landforms are rimu, miro, thin-barked tōtara, hīnau, silver beech and lancewood.

Ecosystem Plant Lists

Boulder banks & islets

KEY

PLANTING RATIO
relative proportions of plants
■■ = plant commonly
■ = plant less commonly

PLANT PREFERENCES
■ = prefers or tolerates
1/2 = prefers or tolerates some
□ = intolerant of
s = some salt water tolerance
1= frost hardy
2 = semi-frost hardy
3 = frost tender

TYPE OF FOOD PROVIDED FOR BIRDS & LIZARDS
F = Fruit/seeds
N = Nectar
B = Buds/foliage
I = Insects

Trees

What to plant	Māori and/or common name	Planting Ratio	Plant Preferences						Max Heights	Food Type	Notes
Botanical name			Wet	Moist	Dry	Sun	Shade	Frost			
Dodonaea viscosa	akeake	■	□	■	■	■	□	2	7m	I	
Myoporum laetum	ngaio	■■	□	■	■	■	□	3	10m	F, N	

Shrubs

* indicates those that can become small trees, 5-8m

What to plant	Māori and/or common name	Planting Ratio	Plant Preferences						Max Heights	Food Type	Notes
Botanical name			Wet	Moist	Dry	Sun	Shade	Frost			
Coprosma propinqua	mingimingi, common coprosma	■	■	■	■	■	□	1	*	F, I	
Coprosma repens	taupata	■	□	1/2	■	■	□	3	*6m	F	Strictly coastal
Discaria toumatou var. “prostrate”	tūmatakuru, prostrate matagouri	■	□	□	■	■	□	1		F, I	This prostrate variety grows only in this ecosystem
Leucopogon fraseri	pātōtara, prickle heath	■	□	□	■	■	□	1		F	Not a suitable revegetation species
Melicytus aff. alpinus (= M. “Waipapa”)		■	□	1/2	■	■	1/2	1		F, N	
Melicytus crassifolius	coastal porcupine shrub	■	□	□	■	■	□	2		F, N	
Ozothamnus leptophyllus (= Cassinia)	tauhinu	■■	□	1/2	■	■	□	1		I	
Pimelea urvilleana	pinātoro, shore pinātoro	■	□	s 1/2	■	■	□	3		F	
Plagianthus divaricatus	mākaka, shore ribbonwood	■	s 1/2	■	■	■	□	1		F	

Climbers

What to plant	Māori and/or common name	Planting Ratio	Plant Preferences						Food Type	Notes
Botanical name			Wet	Moist	Dry	Sun	Shade	Frost		
Calystegia soldanella	shore convolvulus	■	□	s 1/2	■	■	□	3		
Muehlenbeckia complexa	pōhuehue, scrambling pōhuehue	■■	□	1/2	■	■	□	1	F, I, B	
Muehlenbeckia ephedroides	pōhuehue, creeping pōhuehue	■	□	□	■	■	□	1	F	
Parsonsia capsularis	kaiwhiria, scrub jasmine	■	□	■	■	■	1/2	1		

Ground covers, grasses, sedges and rushes

What to plant	Māori and/or common name	Planting Ratio	Plant Preferences						Food Type	Notes
Botanical name			Wet	Moist	Dry	Sun	Shade	Frost		
Apium prostratum	sea celery	■	s 1/2	■	1/2	■	□	2		
Atriplex cinerea	grey saltbush	■■	□	s 1/2	■	■	□	3		Sub-shrub; nationally rare
Austrostipa stipoides	estuary needle grass	■■	s 1/2	■	■	■	□	2		
Cortaderia richardii	toetoe	■■	■	■	■	■	□	1		
Isolepis nodosa	knobby clubrush	■	□	1/2	■	■	□	2		
Leptocarpus similis	oioi, jointed rush	■	s 1/2	■	□	■	□	1		Prefers mouths of freshwater courses
Linum monogynum	rauhuia	■	□	1/2	■	■	□	1		
Lobelia anceps	shore lobelia	■	□	■	■	■	1/2	3		
Phormium cookianum	whaririki, coastal flax	■	□	■	■	■	□	1	N	
Poa cita	wī, silver tussock	■■	□	■	■	■	1/2	1	F	

Estuaries

KEY

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relative proportions of plants
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TYPE OF FOOD PROVIDED FOR BIRDS & LIZARDS
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B = Buds/foliage
I = Insects

Shrubs

What to plant	Māori and/or common name	Planting Ratio	Plant Preferences						Food Type	Notes
Botanical name			**Wet**	**Moist**	**Dry**	**Sun**	**Shade**	**Frost**		
Plagianthus divaricatus	mākaka, shore ribbonwood	■■	s 1/2	■	■	■	□	1	F	

Ground covers, grasses, sedges and rushes

What to plant	Māori and/or common name	Planting Ratio	Plant Preferences						Food Type	Notes
Botanical name			**Wet**	**Moist**	**Dry**	**Sun**	**Shade**	**Frost**		
Apium prostratum	sea celery	■■	s 1/2	■	1/2	■	□	2		
Austrostipa stipoides	estuary needle grass	■■	s 1/2	■	■	■	□	2		
Centella uniflora	centella	■	s 1/2	■	1/2	■	1/2	2		
Chenopodium glaucum var. ambiguum	glaucous goosefoot	■	s 1/2	■	■	■	□	2		
Isolepis nodosa	knobby clubrush	■	□	s 1/2	■	■	□	2		
Juncus krausii ssp. australiensis	sea rush	■■	s■	■	□	■	□	2		
Leptinella dioica	coastal button	■■	s 1/2	■	1/2	■	1/2	2		
Leptocarpus similis	oioi, jointed rush	■■	s 1/2	■	□	■	□	1		Prefers mouths of freshwater courses
Lobelia anceps	shore lobelia	■	□	s■	■	■	1/2	3		
Samolus repens	shore primrose	■■	s 1/2	■	1/2	■	□	2		
Schoenoplectus pungens	three square	■■	s■	1/2	□	■	□	1		
Schoenoplectus tabernaemontani	lake clubrush	■■	■	1/2	□	■	□	2		Prefers brackish water
Selliera radicans	remuremu	■■	s 1/2	■	■	■	□	2		

Notes

Dunes

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TYPE OF FOOD PROVIDED FOR BIRDS & LIZARDS
F = Fruit/seeds
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I = Insects

Trees

What to plant	Māori and/or common name	Planting Ratio	Plant Preferences						Max Heights	Food Type	Notes
Botanical name			Wet	Moist	Dry	Sun	Shade	Frost			
Dodonaea viscosa	akeake	■	□	■	■	■	□	2	7m	I	
Kunzea ericoides	kānuka	■	□	1/2	■	■	□	1	15m	N, I	
Melicytus ramiflorus	māhoe, whiteywood	■	□	1/2	□	1/2	■	2	10m	N, B, I	
Myoporum laetum	ngaio	■	□	■	■	■	□	3	10m	F, N	
Olearia paniculata	akiraho, golden akeake	■	□	□	■	■	□	2	6m	I	Mainly riparian, dry and rocky substrates

Shrubs

What to plant	Māori and/or common name	Planting Ratio	Plant Preferences						Food Type	Notes
Botanical name			Wet	Moist	Dry	Sun	Shade	Frost		
Carmichaelia australis var. "flagelliformis"	whip broom	■	1/2	■	■	■	1/2	1	B	
Coprosma acerosa	sand coprosma	■	□	1/2	■	■	□	1	L	Locally extinct
Korthalsella salicornioides	coral mistletoe	■				■	1/2	2		Not a suitable revegetation species; nationally rare
Ozothamnus leptophyllus (=Cassinia)	tauhinu	■	□	1/2	■	■	□	1	I	
Pimelea aff. arenaria	aute taranga, southern sand daphne	■	□	1/2	■	■	□	3	F	Nationally rare; locally extinct

Climbers

What to plant	Māori and/or common name	Planting Ratio	Plant Preferences						Food Type	Notes
Botanical name			Wet	Moist	Dry	Sun	Shade	Frost		
Calystegia soldanella	panahi, shore convolvulus	■	□	s 1/2	■	■	□	3		
Muehlenbeckia complexa	scrambling pōhuehue	■	□	1/2	■	■	□	1	F, I, B	

Ground covers, grasses, sedges and rushes

What to plant	Māori and/or common name	Planting Ratio	Plant Preferences						Food Type	Notes
Botanical name			Wet	Moist	Dry	Sun	Shade	Frost		
Austrofestuca littoralis	sand tussock	■■	□	■	■	■	□	2		Locally extinct
Bolboschoenus medianus		■■	■	1/2	□	■	□	2		Prefers brackish water
Carex pumila	sand sedge	■■	□	1/2	■	■	□	2		
Cortaderia richardii	South Island toetoe	■	■	■	■	■	□	1		Mainly riparian
Cyperus ustulatus	ūpoko tāngata, umbrella sedge	■■	1/2	■	1/2	■	□	2	F	
Desmoschoenus spiralis	pīngao, golden sand sedge	■■	□	■	■	■	■	2		
Euphorbia glauca	waiūatua, coastal milk spurge	■	□	■	■	■	□	2		Nationally rare; locally extinct
Isolepis nodosa	knobby clubrush	■	□	1/2	■	■	□	2		
Phormium cookianum	whaririki, coastal flax	■	□	■	■	■	□	1	N	
Spinifex sericeus	spinifex	■■	□	■	■	■	□	2		
Tetragonia tetragonioides	NZ spinach							2		Dunes and stony beaches along shoreline

Freshwater wetlands & waterways

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B = Buds/foliage
I = Insects

Trees

What to plant Botanical name	Māori and/or common name	Planting Ratio Early Stage	 Later Stage	Plant Preferences Wet	 Moist	 Dry	 Sun	 Shade	 Frost	Max Heights	Food Type	Notes
Cordyline australis	tī kouka, cabbage tree	■■		■	■	■	■	□	1	5m	F, I	
Dacrycarpus dacrydioides	kahikatea, white pine	■	■■	■	■	□	1/2	1/2	1	60m	F, I	
Laurelia novae-zelandiae	pukatea		■■	■	1/2			■	3	35m		
Leptospermum scoparium	mānuka, teatree	■■		■	■	■	■	□	1	8m	N, I	
Syzygium maire freshwater	swamp maire	■		■	1/2	□	□	■	3	15m	F, N, I, B	Coastal wetland only; locally extinct

Shrubs

What to plant Botanical name	Māori and/or common name	Planting Ratio Early Stage	 Later Stage	Plant Preferences Wet	 Moist	 Dry	 Sun	 Shade	 Frost	Food Type	Notes
Coprosma propinqua	mingimingi, common coprosma	■■		■	■	■	■	□	1	F, I	
Coprosma robusta	karamū	■■		1/2	■	■	■	1/2	2	F	
Hebe stricta var. atkinsonii		■■		1/2	■	1/2	■	1/2	2	N, I, B	
Melicytus micranthus	manakura, swamp māhoe	■	■■	■	■	□	1/2	■	2	F, I	
Neomyrtus pedunculata	rōhutu	■		1/2	■	□	1/2	■	1	F, I	

Climbers

What to plant Botanical name	Māori and/or common name	Planting Ratio Early Stage	 Later Stage	Plant Preferences Wet	 Moist	 Dry	 Sun	 Shade	 Frost	Food Type	Notes
Freycinetia banksii	kiekie		■	1/2	■	1/2	□	■	3	F, N, I	Semi-coastal
Ripogonum scandens	kareao, supplejack		■	■	■	□	1/2	■	2	F	

Ferns

What to plant	Māori and/or common name	Planting Ratio	Plant Preferences						Food Type	Notes
Botanical name			Wet	Moist	Dry	Sun	Shade	Frost		
Blechnum minus	kiokio, swamp kiokio	■■	■	■	□	1/2	1/2	1		
Blechnum novae-zelandiae	kiokio	■■	■	■	■	1/2	■	1		

Ground covers, grasses, sedges and rushes

What to plant	Māori and/or common name	Planting Ratio	Plant Preferences						Food Type	Notes
Botanical name			Wet	Moist	Dry	Sun	Shade	Frost		
Baumea articulata	jointed twig-rush	■■	■	□	□	■	□	2		Prefers standing water
Bolboschoenusw caldwellii		■■	■	1/2	□	■	□	2		Prefers brackish water
Carex dissita		■■	■	■	□	1/2	1/2	1	F	
Carex geminata	swarding sedge	■■	■	■	□	■	□	1	F	
Carex secta	pūkio	■■	■	1/2	□	■	1/2	1	F	
Carex virgata	pūrei	■■	■	1/2	□	■	1/2	1	F	
Cortaderia richardii	South Island toetoe	■■	■	■	■	■	□	1		Mainly riparian
Cyperus ustulatus	ūpoko tāngata, umbrella sedge	■	1/2	■	1/2	■	□	2	F	Mainly coastal
Gahnia xanthocarpa	giant cutty sedge	■■	■	■	□	■	1/2	2	F	
Hierochloe redolens	kāretu, holy grass	■■	■	■	□	■	1/2	1		
Juncus australis	rush	■■	1/2	■	□	■	□	2		
Juncus edgariae	common rush	■	1/2	■	□	■	□	3		
Juncus pallidus	giant rush	■■	■	■	□	■	□	2		
Juncus sarophorus	blue rush	■■	1/2	■	□	■	□	3		
Leptocarpus similis	oioi, jointed rush	■■	s 1/2	■	□	■	□	1		Prefers mouths of freshwater courses
Phormium tenax	harakeke, swamp flax	■■	■	■	1/2	■	□	1	N	Mainly riparian
Schoenoplectus tabernaemontani	lake clubrush	■■	■	1/2	□	■	□	2		Prefers brackish water
Typha orientalis	raupō	■■	■	1/2	□	■	□	1		Prefers standing water

Coastal flats & alluvial terraces

KEY

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F = Fruit/seeds
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I = Insects

Trees

What to plant	Māori and/or common name	Planting Ratio		Plant Preferences						Max Heights	Food Type	Notes
Botanical name		Early Stage	Later Stage	Wet	Moist	Dry	Sun	Shade	Frost			
Alectryon excelsus	tītoki		■■	□	■	■	□	■	3	5m	F, I	
Aristotelia serrata	makomako, wineberry	■■		1/2	■	1/2	1/2	1/2	2	10m	F, B, I	
Beilschmiedia tawa	tawa		■■	□	■	□	□	■	3	20m		
Carpodetus serratus	putaputāwētā, marble leaf	■	■	■	■	□	■	1/2	1	10m	F, B, I	
Cordyline australis	tī kouka, cabbage tree	■	■	■	■	■	■	□	1	12m	F, N, I	
Cordyline banksii	tī ngahere, forest cabbage tree	■		■	■	■	■	1/2	2	4m	F, N	
Corynocarpus laevigatus	karaka	■	■■	□	■	■	1/2	■	3	15m	F, N, I	Very coastal
Dacrycarpus dacrydioides	kahikatea	■	■■	■	■	□	1/2	1/2	1	60m	F, I	
Dacrydium cupressinum	rimu		■	■	■	1/2	1/2	1/2	1	35m	F, I	
Dodonaea viscosa	akeake	■■		□	■	■	■	□	2	7m	I	
Elaeocarpus dentatus	hīnau		■		■	1/2	1/2	1/2	2	18m	F, I	
Fuchsia excorticata	kōtukutuku, tree fuchsia	■	■	1/2	■	□	1/2	■	2	10m	F, N, B, I	
Griselinia lucida	puka	■	■■	□	■	■	■	1/2	3	8m	F, B, N, I	
Hedycarya arborea	porokaiwhiri, pigeonwood		■■	1/2	■	1/2	□	■	3	12m	F, I	
Hoheria angustifolia	houhere, narrow-leaved lacebark	■■	■■	1/2	■	■	■	□	1	10m	I	Especially floodplains and deltas
Kunzea ericoides	kānuka	■■	■	□	1/2	■	■	□	1	15m	N, I	
Laurelia novae-zelandiae	pukatea		■■	■	1/2	□	□	■	3	35m		Especially floodplains and deltas
Leptospermum scoparium	mānuka, teatree	■		■	■	■	■	□	1	8m	N, I	
Lophomyrtus bullata	ramarama		■	■	■		1/2	■	2	5m	N, F	
Lophomyrtus obcordata	rōhutu, NZ myrtle	■	■	1/2	■	■	■	■	2	6m	F, I	
Macropiper excelsum	kawakawa		■■	□	■	■	1/2	■	3	6m	F, I, B	
Melicope ternata	whārangi	■	■	□	■	■	■	1/2	3	7m	N	Very coastal
Melicytus ramiflorus	māhoe, whiteywood	■	■■	□	1/2	□	1/2	■	2	10m	N, B, I	
Myoporum laetum	ngaio	■■	■	□	■	■	■	□	3	10m	F, N	
Myrsine australis	māpou	■■	■	□	■	■	■	1/2	1	8m	F, I	Slow growing
Pennantia corymbosa	kaikōmako	■■	■■	■	■	■	■	■	1	12m	F, N, I, B	Slow growing
Pittosporum eugenioides	tarata, lemonwood	■■	■	1/2	■	■	■	1/2	1	12m	F, I	
Pittosporum tenuifolium	kōhūhū, black matipo	■■	■	□	■	■	■	1/2	1	9m	F, I, B	

Plagianthus regius	manatū, lowland ribbonwood	■■	■■	1/2	■	■	■	□	1	15m	F, I, B	Especially floodplains and deltas
Podocarpus totara	tōtara	■	■■	□	■	■	■	1/2	1	30m	F, B, I	
Prumnopitys ferruginea	miro		■	1/2	■	□	1/2	1/2	1	25m	F, I	
Prumnopitys taxifolia	mataī, black pine	■	■■	□	■	■	■	1/2	1	25m	F, I	
Pseudopanax arboreus	whauwhaupaku, five-finger	■	■	□	■	1/2	1/2	1/2	2	8m	F, N, I, B	
Pseudopanax crassifolius	horoeka, lancewood	■■	■■		■	■	■	■	1	10m	F, N, I	
Rhopalostylis sapida	nīkau		■■	1/2	■	□	□	■	3	10m	F, N, I	
Schefflera digitata	pate, seven finger		■■	1/2	■	□	1/2	■	2	8m		
Sophora microphylla	kōwhai	■■	■■	□	1/2	■	■	1/2	1	10m	N, I, B	Especially floodplains and deltas
Streblus heterophyllus	tūrepo, small-leaved milk tree	■	■	□	■	■	1/2	1/2	3	10m	F, B	Slow growing
Syzygium maire	maire tawake, swamp maire		■	■	1/2	□	□	■	3	15m	F, N, I, B	Permanently wet sites; locally extinct

Shrubs

* indicates those that can become small trees, 5-8m

What to plant Botanical name	Māori and/or common name	Planting Ratio Early Stage	 Later Stage	Plant Preferences Wet	 Moist	 Dry	 Sun	 Shade	 Frost	Max Heights	Food Type	Notes
Alseuosmia pusilla	toropapa		■■	1/2	■	□	□	■	2		F, N	
Coprosma areolata	thin-leaved coprosma	■■	■	□	■	1/2	1/2	1/2	2	*5m	F, B	
Coprosma crassifolia	thick leaved coprosma	■■		□	1/2	■	■	1/2	1	*	F, N	
Coprosma grandifolia	raurēkau		■■	1/2	■	□	1/2	■	3	*6m	F, B	
Coprosma propinqua	mingimingi, common coprosma	■■		■	■	■	■	□	1	*	F, I	
Coprosma repens	taupata	■■		□	1/2	■	■	□	3	*6m	F	Exposed sites only
Coprosma rigida	a small leaved coprosma	■■		1/2	■	1/2	■	1/2	1	*	F	Especially riparian
Coprosma robusta	karamū	■■		1/2	■	■	■	1/2	2		F	
Coprosma rotundifolia	round-leaved coprosma	■■	■■	1/2	■	□	1/2	■	1	*5m	F, I	
Coriaria arborea	tutu	■■		1/2	■	■	■	□	2	*	F	
Geniostoma ligustrifolium	hangehange		■■	□	■	1/2	1/2	■	3		N	
Hebe stricta var. atkinsonii	koromiko	■■		1/2	■	1/2	■	1/2	2		N, I, B	
Ileostylus micranthus	small-flowered mistletoe	■■	■■				■	1/2	2		F, B	Not a suitable revegetation species; nationally rare
Korthalsella lindsayi	forest coral mistletoe	■■	■				■	1/2	2			Not a suitable revegetation species
Korthalsella salicornioides	coral mistletoe	■■					■	1/2	2			Not a suitable revegetation species; nationally rare
Melicope simplex	poataniwha	■■	■	□	□	■	■	□	2		F	
Melicytus micranthus	manakura, swamp māhoe		■■	■	■	□	1/2	■	2	*	F, I	Especially wet sites on low-lying floodplains
Ozothamnus leptophyllus (=Cassinia)	tauhinu	■■		□	1/2	■	■	□	1		I	
Pseudowintera axillaris	lowland horopito		■■	1/2	■	□	□	■	3	*	F	
Solanum laciniatum	poroporo, southern poroporo	■■		□	■	■	■	□	3		F, N, I	
Teucridium parvifolium	native germander	■■	■	□	■	■	1/2	1/2	2			Nationally rare; riparian only
Urtica ferox	stinging tree nettle	■■	■	1/2	■	■	1/2	1/2	2			Not a suitable revegetation species

Climbers

What to plant Botanical name	Māori and/or common name	Planting Ratio		Plant Preferences						Food Type	Notes
		Early Stage	Later Stage	Wet	Moist	Dry	Sun	Shade	Frost		
Calystegia tuguriorum	pōwhiwhi, native convolvulus	■	■	1/2	■	1/2	■	1/2	2		Can be weedy
Clematis foetida	small clematis		■	□	■	■	1/2	1/2	2		
Clematis paniculata	puawānanga, bush clematis	■	■	□	■	□	1/2	1/2	2	N	
Freycinetia banksii	kiekie		■■	1/2	■	1/2	□	■	3	F, N, I	
Fuchsia perscandens	climbing fuchsia		■	1/2	■	□	1/2	1/2	2	F, N, B	
Metrosideros diffusa	climbing rātā		■	1/2	■	□	1/2	■	2	N	
Metrosideros fulgens	akakura, scarlet climbing rātā		■	□	■	1/2	1/2	■	2	N, I	
Metrosideros perforata	climbing rātā		■■	□	■	1/2	1/2	■	2	N, I	
Parsonsia heterophylla	kaihua, forest jasmine		■	□	■	□	1/2	■	2		
Passiflora tetrandra	kōhia, passionvine		■■	□	■	□	1/2	1/2	3	F, N	
Ripogonum scandens	kareao, supplejack		■■	■	■	□	1/2	■	2	F	
Rubus australis	tātarāmoa, ground lawyer		■	1/2	■	□	1/2	■	1	F	
Rubus schmidelioides	scrub lawyer		■	□	■	■	■	1/2	1	F	
Rubus squarrosus	tātarāmoa, leafless lawyer	■		□	1/2	■	■	1/2	1	F	

Ferns

What to plant Botanical name	Māori and/or common name	Planting Ratio		Plant Preferences						Food Type	Notes
		Early Stage	Later Stage	Wet	Moist	Dry	Sun	Shade	Frost		
Arthropteris tenella	jointed fern		■	□	■	1/2	□	■	3		
Asplenium bulbiferum	mauku, manamana, hen and chicken fern		■■	1/2	■	□	□	■	3		
Asplenium oblongifolium	huruhuruwhenua, shining spleenwort		■■	□	■	■	1/2	■	3		
Blechnum filiforme	pānako, climbing hardfern		■■	□	■	■	□	■	3		
Blechnum fluviatile	kiwakiwa, terrace hardfern		■	1/2	■	□	□	■	1		
Blechnum minus	kiokio, swamp kiokio		■	■	■	□	1/2	1/2	1		
Cyathea dealbata	ponga, silver tree fern	■	■	□	■	1/2	□	■	2		
Cyathea medullaris	mamaku	■	■	1/2	■	□	□	■	3	I	
Dicksonia fibrosa	whekī ponga, stout tree fern	■	■	1/2	■	□	□	■	1	I	
Dicksonia squarrosa	whekī, rough tree fern	■	■	1/2	■	□	□	■	2	I	
Lastreopsis microsora			■	1/2	■	□	□	■	3		
Microsorum pustulatum	kōwaowao, hound's tongue		■	□	■	■	1/2	■	2		
Pneumatopteris pennigera	pakau, gully fern		■■	□	■	□	□	■	2		

Ground covers, grasses, sedges and rushes

What to plant Botanical name	Māori and/or common name	Planting Ratio		Plant Preferences						Food Type	Notes
		Early Stage	Later Stage	Wet	Moist	Dry	Sun	Shade	Frost		
Acaena anserinifolia	piripiri	■■	■	1/2	■	■	■	1/2	1		
Anemanthele lessoniana	gossamer grass	■■		□	■	■	■	1/2	2		Confined to alluvium and limestone; nationally rare
Astelia fragrans	kahakaha, forest lily		■■	□	■	□	1/2	■	2	F	
Carex dissita	sedge		■	■	■	□	1/2	1/2	1	F	
Carex forsteri		■	■	□	■	■	■	1/2	2	F	
Carex lambertiana		■	■	□	■	■	1/2	1/2	2	F	
Carex virgata	pūrei	■■	■	■	1/2	□	■	1/2	1	F	Wet depressions
Centella uniflora	centella		■	1/2	■	1/2	■	1/2	2		
Cortaderia richardii	toetoe	■■	■■	■	■	■	■	□	1		Mainly riparian
Cyperus ustulatus	ūpoko tāngata, umbrella sedge	■■		1/2	■	1/2	■	□	2	F	
Dianella nigra	turutu, blueberry		■	□	■	■	■	1/2	2	F	
Juncus edgariae	common rush	■		1/2	■	□	■	□	3		
Juncus sarophorus	blue rush	■		1/2	■	□	■	□	3		
Libertia mooreae	mikoikoi, native iris		■				■	1/2	2		
Microlaena avenacea	bush ricegrass		■■		■	□	1/2	1/2	1		
Microlaena polynoda	bamboo ricegrass		■■	□	■	■	1/2	1/2	3		
Microlaena stipoides	meadow ricegrass	■		□	■	■	■	1/2	2		
Phormium tenax	harakeke, swamp flax	■■		■	■	1/2	■	□	1	N	Especially damp depressions
Scutellaria novae-zelandiae	shovel mint		■■	□	■	1/2	□	■	2		Nationally rare
Uncinia banksii	hookgrass		■	□	1/2	■	1/2	1/2	2		On drier sites
Uncinia uncinata	kamu, hookgrass		■■	1/2	■	□	1/2	■	1		

Coastal hill country

KEY

PLANTING RATIO
relative proportions of plants
■■ = plant commonly
■ = plant less commonly

PLANT PREFERENCES
■ = prefers or tolerates
1/2 = prefers or tolerates some
□ = intolerant of
1= frost hardy
2 = semi-frost hardy
3 = frost tender

TYPE OF FOOD PROVIDED FOR BIRDS & LIZARDS
F = Fruit/seeds
N = Nectar
B = Buds/foliage
I = Insects

Trees

What to plant Botanical name	Māori and/or common name	Planting Ratio		Plant Preferences						Max Heights	Food Type	Notes
				Wet	Moist	Dry	Sun	Shade	Frost			
		Early Stage	Later Stage									
Alectryon excelsus	tītoki		■■	□	■	■	□	■	3	5m	F, I	
Beilschmiedia tawa	tawa		■	□	■	□	□	■	3	20m		
Cordyline australis	tī kouka, cabbage tree	■		■	■	■	■	□	1	12m	F, N, I	
Corynocarpus laevigatus	karaka	■	■	□	■	■	1/2	■	3	15m	F, N, I	Very coastal
Dacrydium cupressinum	rimu, red pine		■	■	■	1/2	1/2	1/2	1	35m	F, I	
Dodonaea viscosa	akeake	■■		□	■	■	■	□	2	7m	I	
Dysoxylum spectabile	kohekohe		■	□	■	■	□	■	3	15m	F, I, N	
Elaeocarpus dentatus	hīnau		■		■	1/2	1/2	1/2	2	18m	F, I	
Entelea arborescens	whau	■		□	■	1/2	■	1/2	3	6m	I, N?	Very coastal at Delaware Bay; possibly introduced
Griselinia lucida	puka	■■	■■	□	■	■	■	1/2	3	8m	F, B, N, I	
Hedycarya arborea	porokaiwhiri, pigeonwood		■■	1/2	■	1/2	□	■	3	12m	F, I	
Kunzea ericoides	kānuka	■■	■■	□	1/2	■	■	□	1	15m	N, I	
Leptospermum scoparium	mānuka, teatree	■		■	■	■	■	□	1	8m	N, I	
Macropiper excelsum	kawakawa	■	■■	□	■	■	1/2	■	3	6m	F, I, B	
Melicope ternata	whārangi	■	■	□	■	■	■	1/2	3	7m	N	Very coastal
Melicytus ramiflorus	māhoe, whiteywood	■■	■■	□	1/2	□	1/2	■	2	10m	N, B, I	
Myoporum laetum	ngaio		■■	□	■	■	■	□	3	10m	F, N	
Myrsine australis	māpou		■■	□	■	■	■	1/2	1	8m	F, I	Slow growing
Nothofagus solandri var. solandri	tawhairauriki, black beech	■	■■	□	■	■	■	1/2	1	25m	F, N, I	
Nothofagus truncata	hututawai, hard beech	■	■■	□	1/2	■	■	1/2	2	30m	F, N, I	
Olearia paniculata	akiraho, golden akeake	■■	■	□	□	■	■	□	2	6m	I	Dry and rocky substrates
Pennantia corymbosa	kaikōmako	■	■■	■	■	■	■	■	1	12m	F, N, I, B	Slow growing
Pittosporum eugenioides	tarata, lemonwood	■■	■	1/2	■	■	■	1/2	1	12m	F, I	
Pittosporum tenuifolium	kōhūhū	■■	■	□	■	■	■	1/2	1	9m	F, I, B	
Prumnopitys taxifolia	matai, black pine		■■	□	■	■	■	1/2	1	25m	F, I	
Pseudopanax arboreus	whauwhaupaku, five-finger	■	■	□	■	1/2	1/2	1/2	2	8m	F, N, I, B	

Pseudopanax crassifolius	horoeka, lancewood	■	■	1/2	■	■	■	■	1	10m	F, N, I	
Pseudopanax ferox	fierce lancewood	■■	■	□		■	■	1/2	2	8m	F, N, I	Only north of Delaware Inlet; nationally rare
Rhopalostylis sapida	nīkau		■■	1/2	■	□	□	■	3	10m	F, N, I	
Streblus banksii	ewekurī, large-leaved milk tree		■	□	■	■	1/2	■	3	12m		Locally extinct; nationally rare

Shrubs

* indicates those that can become small trees, 5-8m

What to plant	Māori and/or common name	Planting Ratio		Plant Preferences						Max Heights	Food Type	Notes
				Wet	Moist	Dry	Sun	Shade	Frost			
Botanical name		Early Stage	Later Stage									
Brachyglottis repanda	rangiora	■■	■	□	■	■	1/2	■	3	*	I	Not a suitable revegetation species
Carmichaelia australis var. "flagelliformis"	whip broom	■		1/2	■	■	■	1/2	1		B	
Coprosma crassifolia	thick-leaved coprosma	■	■	□	1/2	■	■	1/2	1	*	F, N	Especially dry sites
Coprosma grandifolia	raurēkau		■	1/2	■	□	1/2	■	3	*6m	F, B	
Coprosma lucida	shining karamū	■	■	□	■	■	■	1/2	2	*	F	
Coprosma propinqua	mingimingi, common coprosma	■		■	■	■	■	□	1	*	F, I	
Coprosma repens	taupata	■■		□	1/2	■	■	□	3	*6m	F	Very coastal; exposed sites
Coprosma rhamnoides	scrub coprosma	■	■	□	1/2	■	■	1/2	1		F, I	
Coprosma robusta	karamū	■■	■	1/2	■	■	■	1/2	2		F	
Coriaria arborea	tutu	■■		1/2	■	■	■	□	2	*	F	
Corokia cotoneaster	korokia	■		□	1/2	■	■	□	1		N, F	
Geniostoma ligustrifolium	hangehange		■	□	■	1/2	1/2	■	3		N	
Hebe stricta var. atkinsonii	koromiko	■■		1/2	■	1/2	■	1/2	2		N, I, B	
Helichrysum lanceolatum	niniao		■■	□	1/2	■	■	1/2	2			Mainly riparian
Ileostylus micranthus	small-flowered mistletoe		■■				■	1/2	2		F, B	Not a suitable revegetation species; nationally rare
Korthalsella salicornioides	coral mistletoe	■■					■	1/2	2			Not a suitable revegetation species; nationally rare
Leptecophylla juniperina (= Cyathodes)	prickly mingimingi	■	■	□	1/2	■	■	1/2	1		F	
Leucopogon fasciculatus	mingimingi		■■	□	■	■	1/2	1/2	1		F, I	
Leucopogon fraseri	pātōtara, prickle heath	■■		□	□	■	■	□	1		F	Not a suitable revegetation species
Melicytus aff. alpinus (=M. "Waipapa")	lowland porcupine shrub	■■		□	1/2	■	■	1/2	1		F, N	
Melicytus aff. obovatus (=M. "coast")	Cook Strait māhoe	■■		□	□	■	■	□	3		F, N	
Melicytus crassifolius	coastal porcupine shrub	■■		□	□	■	■	□	2		F, N	
Ozothamnus leptophyllus (=Cassinia)	tauhinu	■■		□	1/2	■	■	□	1		I	
Pimelea urvilleana	pinātoro, shore daphne	■■		□	1/2	■	■	□	3		F	
Solanum laciniatum	southern poroporo	■■		□	■	■	■	□	3		F, N, I	
Tupeia antarctica	tāpia, white mistletoe	■	■				■	1/2	2			Not a suitable revegetation species; locally extinct?

Climbers

What to plant Botanical name	Māori and/or common name	Planting Ratio		Plant Preferences						Food Type	Notes
		Early Stage	Later Stage	Wet	Moist	Dry	Sun	Shade	Frost		
Calystegia tuguriorum	powhiwhi, native convolvulus	■	■	1/2	■	1/2	■	1/2	2		Can be weedy
Freycinetia banksii	kiekie	■	■■	1/2	■	1/2	□	■	3	F, N, I	
Metrosideros fulgens	akakura, scarlet climbing rātā		■■	□	■	1/2	1/2	■	2	N, I	
Metrosideros perforata	climbing rātā	■	■■	□	■	1/2	1/2	■	2	N, I	
Muehlenbeckia australis	pōhuehue	■■		1/2	■	■	1/2	1/2	1	F, I, B	Can become weedy
Muehlenbeckia complexa	scrambling pōhuehue	■■		□	1/2	■	■	□	1	F, I, B	
Muehlenbeckia ephedroides	pōhuehue, creeping pōhuehue	■■		□	□	■	■	□	1	F	
Parsonsia heterophylla	kaihua, forest jasmine		■■	□	■	□	1/2	■	2		
Parsonsia capsularis	kaiwhiria, scrub jasmine	■■		□	■	■	■	1/2	1		
Ripogonum scandens	kareao, supplejack		■■	■	■	□	1/2	■	2	F	
Rubus schmidelioides	scrub lawyer	■■		□	■	■	■	1/2	1	F	
Rubus squarrosus	tātarāmoa, leafless lawyer	■■		□	1/2	■	■	1/2	1	F	

Ferns

What to plant Botanical name	Māori and/or common name	Planting Ratio		Plant Preferences						Food Type	Notes
		Early Stage	Later Stage	Wet	Moist	Dry	Sun	Shade	Frost		
Asplenium oblongifolium	huruhuruwhenua, shining spleenwort		■■	□	■	■	1/2	■	3		
Blechnum filiforme	pānako, climbing hardfern		■■	□	■	■	□	■	3		
Cyathea dealbata	ponga, silver tree fern	■	■	□	■	1/2	□	■	2		
Cyathea medullaris	mamaku, black tree fern	■	■	1/2	■	□	□	■	3	I	
Microsorum pustulatum	kōwaowao, hound's tongue	■	■■	□	■	■	1/2	■	2		

Ground covers, grasses, sedges and rushes

What to plant Botanical name	Māori and/or common name	Planting Ratio Early Stage	 Later Stage	Plant Preferences Wet	 Moist	 Dry	 Sun	 Shade	 Frost	Food Type	Notes
Astelia fragrans	kahakaha, forest lily		■	□	■	□	1/2	■	2	F	
Carex forsteri		■	■	□	■	■	■	1/2	2	F	
Carex flagellifera	boot strap sedge	■■		□	■	1/2	■	1/2	1	F	
Carex lambertiana		■	■	□	■	■	1/2	1/2	2	F	
Carex solandri	sedge	■	■	□	■	1/2	1/2	1/2	2	F	
Centella uniflora	centella	■■		1/2	■	1/2	■	1/2	2		
Cortaderia richardii	South Island toetoe	■■		■	■	■	■	□	1		Mainly riparian and seepages
Cyperus ustulatus	ūpoko tāngata, umbrella sedge	■■		1/2	■	1/2	■	□	2	F	
Dianella nigra	turutu, blueberry	■	■	□	■	■	■	1/2	2	F	
Dichondra repens	dichondra	■■		□	1/2	■	■	1/2	1		
Disphyma australe	horokaka, native iceplant	■■		□	■	■	■	□	3	B	
Euphorbia glauca	waiūatua, coastal milk spurge	■■		□	■	■	■	□	2		Nationally rare; locally extinct
Gahnia pauciflora	cutty sedge	■■	■	□	■	■	■	1/2	3	F	
Isolepis nodosa	knobby clubrush	■■		□	1/2	■	■	□	2		
Libertia ixioides	mikoikoi, native iris	■	■	□	■	■	■	1/2	2		
Linum monogynum	rauhuia	■■		□	1/2	■	■	□	1		
Lobelia anceps	shore lobelia	■■		□	■	■	■	1/2	3		
Microlaena polynoda	bamboo ricegrass	■	■	□	■	■	1/2	1/2	3		
Microlaena stipoides	meadow ricegrass	■	■	□	■	■	■	1/2	2		
Phormium cookianum	whaririki, coastal flax	■■		□	■	■	■	□	1	N	
Poa aff. cita	wī, silver tussock	■■		□	■	■	■	1/2	1	F	
Samolus repens	shore primrose	■■		s 1/2	■	1/2	■	□	2		
Uncinia banksii	hookgrass		■■	□	1/2	■	1/2	1/2	2		
Uncinia uncinata	kamu, hookgrass		■■	1/2	■	□	1/2	■	1		

Lowland flats & alluvial terraces

KEY

PLANTING RATIO
relative proportions of plants
■■ = plant commonly
■ = plant less commonly

PLANT PREFERENCES
■ = prefers or tolerates
1/2 = prefers or tolerates some
□ = intolerant of
1= frost hardy
2 = semi-frost hardy
3 = frost tender

TYPE OF FOOD PROVIDED FOR BIRDS & LIZARDS
F = Fruit/seeds
N = Nectar
B = Buds/foliage
I = Insects

Trees

What to plant Botanical name	Māori and/or common name	Planting Ratio		Plant Preferences						Max Heights	Food Type	Notes
		Early Stage	Later Stage	Wet	Moist	Dry	Sun	Shade	Frost			
Alectryon excelsus	tītoki		■■	□	■	■	□	■	3	5m	F, I	
Aristotelia serrata	makomako, wineberry	■■		1/2	■	1/2	1/2	1/2	2	10m	F, B, I	
Beilschmiedia tawa	tawa		■	□	■	□	□	■	3	20m		
Carpodetus serratus	putaputāwētā, marble leaf	■	■	■	■	□	■	1/2	1	10m	F, B, I	
Cordyline australis	tī kouka, cabbage tree	■	■	■	■	■	■	□	1	12m	F, N, I	
Cordyline banksii	tī ngahere, forest cabbage tree	■		■	■	■	■	1/2	2	4m	F, N	
Dacrycarpus dacrydioides	kahikatea, white pine	■	■■	■	■	□	1/2	1/2	1	60m	F, I	
Dacrydium cupressinum	rimu, red pine		■	■	■	1/2	1/2	1/2	1	35m	F, I	
Dodonaea viscosa	akeake	■■		□	■	■	■	□	2	7m	I	
Elaeocarpus dentatus	hīnau		■		■	1/2	1/2	1/2	2	18m	F, I	
Elaeocarpus hookerianus	pōkākā	■	■■	■	■	□	1/2	1/2	1	12m	F, I	
Fuchsia excorticata	kōtukutuku, tree fuchsia		■■	1/2	■	□	1/2	■	2	10m	F, N, B, I	
Griselinia littoralis	papauma, broadleaf	■	■	□	■	■	■	■	1	15m	F, B, N, I	
Griselinia lucida	puka	■	■■	□	■	■	■	1/2	3			
Hedycarya arborea	porokaiwhiri, pigeonwood		■■		■	■	■	1/2	3	8m	F, B, N, I	
Hoheria angustifolia	houhere, narrow-leaved lacebark	■■	■■	1/2	■	■	■	□	1	10m	F, I	Especially floodplains and deltas
Kunzea ericoides	kānuka	■■	■	□	1/2	■	■	□	1	15m	N, I	
Laurelia novae-zelandiae	pukatea		■	■	1/2	□	□	■	3	35m	B, I	Especially floodplains and deltas in depressions
Leptospermum scoparium	mānuka, teatree	■		■	■	■	■	□	1	8m	N, I	
Lophomyrtus bullata	ramarama		■	■	■		1/2	■	2	5m	N, F	
Lophomyrtus obcordata	rōhutu, NZ myrtle	■	■		■	■	■	■	2		F, I	Mainly riparian
Macropiper excelsum	kawakawa		■■	1/2	■	■	■	■	3	6m	F, I	
Melicytus lanceolatus	māhoe wao	■	■	□	■	□	1/2	■	2	6m	F, B., I	
Melicytus ramiflorus	māhoe, whiteywood	■	■■	□	1/2	□	1/2	■	2	10m	N, B, I	
Metrosideros umbellata	southern rātā		■	□	■	1/2	■	□	1	15m	N, I	Riparian only
Myrsine australis	māpou	■■	■	□	■	■	■	1/2	1	8m	F, I	Slow growing

Nestegis cunninghamii	black maire		■	□	■	□	□	■	2	20m	F, I	
Nestegis lanceolata	maire, white maire		■	1/2	■	1/2	□	■	2	15m	F, I	
Nothofagus menziesii	tawhai, silver beech	■	■■	■	■	■	1/2	1/2	1	30m	F, I	
Nothofagus solandri var. solandri	tawhairauriki, black beech	■	■■	□	■	■	■	1/2	1	25m	F, N, I	
Olearia avicenniifolia	tree daisy	■	■	□	1/2	■	■	□	1	5m	I	Riparian only
Pennantia corymbosa	kaikōmako	■■	■■	■	■	■	■	■	1	12m	F, N, I, B	Slow growing
Phyllocladus trichomanoides	tānekaha	■	■	□	■	■	■	1/2	2	20m	I	
Pittosporum eugenioides	tarata, lemonwood	■■	■	1/2	■	■	■	1/2	1	12m	F, I	
Pittosporum tenuifolium	kōhūhū	■■	■	□	■	■	■	1/2	1	9m	F, I, B	
Plagianthus regius	manatū, lowland ribbonwood	■■	■■	1/2	■	■	■	□	1	15m	F, I, B	Especially floodplains and deltas
Podocarpus totara	tōtara	■	■■	□	■	■	■	1/2	1	30m	F, B, I	
Prumnopitys ferruginea	miro		■	1/2	■	□	1/2	1/2	1	25m	F, I	
Prumnopitys taxifolia	mataī, black pine	■	■■	□	■	■	■	1/2	1	25m	F, I	
Pseudopanax arboreus	whauwhaupaku, five-finger	■		□	■	1/2	1/2	1/2	2	8m	F, N, I, B	
Pseudopanax crassifolius	horoeka, lancewood	■■	■■	1/2	■	■	■	■	1	10m	F, N, I	
Rhopalostylis sapida	nīkau		■■	1/2	■	□	□	■	3	10m	F, N, I	
Schefflera digitata	patē, seven finger		■■	1/2	■	□	1/2	■	2	8m	F, N, B	
Sophora microphylla	kōwhai	■■	■■	□	1/2	■	■	1/2	1	10m	N, I, B	Especially floodplains and deltas
Streblus heterophyllus	tūrepo, small-leaved milk tree	■	■	□	■	■	1/2	1/2	3	10m	F, B	Slow growing
Weinmannia racemosa	kamahi	■	■	1/2	■	1/2	1/2	1/2	1	10m	N, I	

Shrubs

* indicates those that can become small trees, 5-8m

What to plant Botanical name	Māori and/or common name	Planting Ratio Early Stage	 Later Stage	Plant Preferences Wet	 Moist	 Dry	 Sun	 Shade	 Frost	Max Heights	Food Type	Notes
Alepis flavida	yellow mistletoe		■■				■	1/2	2		F, N	Not a suitable revegetation species; nationally rare
Alseuosmia pusilla	toropapa		■■	1/2	■	□	□	■	2		F, N	
Carmichaelia australis var. “flagelliformis”	whip broom	■■	■■	1/2	■	■	■	1/2	1		B	Mainly riparian
Carmichaelia odorata var. “glabrata”	leafy broom	■■	■	1/2	■	■	■	1/2	2		B	Mainly riparian
Coprosma areolata	thin-leaved coprosma		■■	□	■	1/2	1/2	1/2	2	*5m	F, B	
Coprosma crassifolia	thick leaved coprosma	■■	■	□	1/2	■	■	1/2	1	*	F, N	Mainly riparian - especially dry sites
Coprosma foetidissima	hūpiro, stinking coprosma		■■	■	■	□	1/2	■	1	*	F	
Coprosma grandifolia	raurēkau		■■	1/2	■	□	1/2	■	3	*6m	F, B	
Coprosma linariifolia	yellow-wood	■■		□	■	1/2	■	■	2	*	F, I	Mainly riparian
Coprosma lucida	shining karamū	■■		□	■	■	■	1/2	2	*	F	
Coprosma obconica	base coprosma	■■	■	1/2	■	■	1/2	1/2	1	*	F	Nationally rare
Coprosma propinqua	mingimingi, common coprosma	■■	■	■	■	■	■	□	1	*	F, I	
Coprosma rhamnoides	scrub coprosma	■■	■	□	1/2	■	■	1/2	1		F, I	
Coprosma rigida	streamside coprosma	■■	■	1/2	■	1/2	■	1/2	1	*	F	Especially riparian
Coprosma robusta	karamū	■■	■	1/2	■	■	■	1/2	2		F	

Shrubs continued

What to plant Botanical name	Māori and/or common name	Planting Ratio		Plant Preferences						Max Heights	Food Type	Notes
		Early Stage	Later Stage	Wet	Moist	Dry	Sun	Shade	Frost			
Coprosma rotundifolia	round-leaved coprosma	■■	■■	1/2	■	□	1/2	■	1	*5m	F, I	
Coprosma aff. parviflora (=C. “tayloriae”)	tier coprosma	■	■	■	■	■	■	1/2	1	*	F	
Coriaria arborea	tutu	■■		1/2	■	■	■	□	2	*	F	
Corokia cotoneaster	korokio	■■	■	□	1/2	■	■	□	1		N, F	
Gaultheria antipoda	false beech		■■	□	1/2	■	■	1/2	1		F	Mainly riparian
Geniostoma ligustrifolium	hangehange		■■	□	■	1/2	1/2	■	3		N	
Hebe divaricata	hebe	■■		□	1/2	■	■	1/2	2			Mainly riparian
Hebe gracillima	hebe	■■	■	1/2	1/2	1/2	1/2	■	1			
Hebe stenophylla var. stenophylla	hebe	■■	■	□	1/2	■	■	□	1		N, I, B	Mainly riparian
Hebe stricta var. atkinsonii		■■		1/2	■	1/2	■	1/2	2		N, I, B	
Hebe venustula	hebe	■■	■	□	□	■	■	1/2	1		I	Mainly riparian
Helichrysum lanceolatum	niniao	■■	■	□	1/2	■	■	1/2	2			Mainly riparian in later stage
Ileostylus micranthus	small-flowered mistletoe	■■	■				■	1/2	2		F, B	Not a suitable revegetation species; nationally rare
Korthalsella lindsayi	forest coral mistletoe	■■	■				■	1/2	2			Not a suitable revegetation species
Korthalsella salicornioides	coral mistletoe	■■					■	1/2	2			Not a suitable revegetation species; nationally rare
Leptecophylla juniperina (= Cyathodes)	prickly mingimingi	■	■	□	1/2	■	■	1/2	1		F	Mainly riparian
Leucopogon fasciculatus	mingimingi		■■	□	■	■	1/2	1/2	1		F, I	
Melicope simplex	poataniwha	■■	■	□	■	■	■	1/2	2	*8m	I, N	
Melicytus micranthus	manakura, swamp māhoe		■■	■	■	□	1/2	■	2	*	F, I	Especially on low-lying floodplains
Myrsine divaricata	weeping māpou	■■	■	■	■	1/2	■	1/2	1	*	F, I	
Neomyrtus pedunculata	rōhutu		■■	1/2	■	□	1/2	■	1		F, I	
Olearia arborescens		■■	■	1/2	■	□	1/2	1/2	1	*	I	Riparian only
Peraxilla colensoi	pirita, scarlet-flowered mistletoe		■■				■	1/2	2		F, N	Not a suitable revegetation species; nationally rare
Pseudowintera axillaris	lowland horopito		■■	1/2	■	□	□	■	3	*	F	
Pseudowintera colorata	horopito		■■	1/2	■	□	■	■	1		F	
Raukaua anomalus	raukawa		■■	1/2	■	1/2	1/2	■	1		F, N	
Solanum laciniatum	southern poroporo	■■		□	■	■	■	□	3		F, N, I	
Teucridium parvifolium	native germander	■■	■	□	■	■	1/2	1/2	2			Nationally rare; riparian only
Tupeia antarctica	tāpia, white mistletoe	■■					■	1/2	2			Not a suitable revegetation species; locally extinct?
Urtica ferox	stinging tree nettle		■■	1/2	■	■	1/2	1/2	2			Not a suitable revegetation species

Climbers

What to plant / Botanical name	Māori and/or common name	Planting Ratio		Plant Preferences						Food Type	Notes
		Early Stage	Later Stage	Wet	Moist	Dry	Sun	Shade	Frost		
Calystegia tuguriorum	powhiwhi, native convolvulus	■■	■	1/2	■	1/2	■	1/2	2		Can be weedy
Clematis foetida	small clematis		■	□	■	■	1/2	1/2	2		Not a suitable revegetation species
Clematis paniculata	puawānanga, bush clematis	■	■	□	■	□	1/2	1/2	2	N	
Freycinetia banksii	kiekie		■	1/2	■	1/2	□	■	3	F, N, I	Semi-coastal
Fuchsia perscandens	climbing fuchsia		■	1/2	■	□	1/2	1/2	2	F, N, B	
Metrosideros colensoi	limestone climbing rātā		■	□	■	■	1/2	■	2	N	Only on the inland limestone belt
Metrosideros diffusa	climbing rātā		■	1/2	■	□	1/2	■	2	N	
Metrosideros fulgens	akakura, scarlet climbing rātā		■	□	■	1/2	1/2	■	2	N, I	
Metrosideros perforata	climbing rātā		■■	□	■	1/2	1/2	■	2	N, I	
Muehlenbeckia australis	pōhuehue		■	1/2	■	■	1/2	1/2	1	F, I, B	Can become weedy
Parsonsia heterophylla	kaihua, forest jasmine		■	□	■	□	1/2	■	2		
Passiflora tetrandra	kōhia, passionvine		■	□	■	□	1/2	1/2	3	F, N	
Ripogonum scandens	kareao, supplejack		■■	■	■	□	1/2	■	2	F	
Rubus australis	tātarāmoa, ground lawyer		■				■	1/2	1		
Rubus cissoides	bush lawyer		■	1/2	■	□	1/2	■	2	F	
Rubus schmidelioides	scrub lawyer		■	□	■	■	■	1/2	1	F	
Rubus squarrosus	tātarāmoa, leafless lawyer	■		□	1/2	■	■	1/2	1	F	

Ferns

What to plant / Botanical name	Māori and/or common name	Planting Ratio		Plant Preferences						Food Type	Notes
		Early Stage	Later Stage	Wet	Moist	Dry	Sun	Shade	Frost		
Asplenium bulbiferum hen and chickens fern	mauku, manamana,		■■	1/2	■	□	□	■	3		
Asplenium oblongifolium	huruhuruwhenua, shining spleenwort		■	□	■	■	1/2	■	3		
Blechnum discolor	piupiu, crown fern		■	□	■	1/2	1/2	■	2		
Blechnum filiforme	pānako, climbing hardfern		■■	□	■	■	□	■	3		
Blechnum fluviatile	kiwakiwa, terrace hardfern		■■	1/2	■	□	□	■	1		
Blechnum novae-zelandiae	kiokio	■■		■	■	■	1/2	■	1		
Cyathea dealbata	ponga, silver tree fern	■■	■	□	■	1/2	□	■	2		
Cyathea medullaris	mamaku, black tree fern	■	■	1/2	■	□	□	■	3		
Dicksonia fibrosa	whekī ponga, stout tree fern	■	■■	1/2	■	□	□	■	1	I	
Dicksonia squarrosa	whekī, rough tree fern	■	■■	1/2	■	□	□	■	2	I	
Microsorum pustulatum	kōwaowao, hound's tongue	■■	■	□	■	■	1/2	■	2		
Pneumatopteris pennigera	pākau, gully fern	■	■■	□	■	□	□	■	2		

Ground covers, grasses, sedges and rushes

What to plant Botanical name	Māori and/or common name	Planting Ratio		Plant Preferences						Food Type	Notes
		Early Stage	Later Stage	Wet	Moist	Dry	Sun	Shade	Frost		
Acaena anserinifolia	piripiri	■■	■	1/2	■	■	■	1/2	1		Mainly riparian
Anaphalioides bellidioides	everlasting daisy	■■	■	□	■	■	■	1/2	1		Mainly riparian
Anemanthele lessoniana	gossamer grass	■■	■	□	■	■	■	1/2	2		Confined to alluvium and limestone; nationally rare
Astelia fragrans	kahakaha, forest lily		■■	□	■	□	1/2	■	2	F	
Carex cockayneana		■	■	□	■	1/2	1/2	1/2	2	F	
Carex dissita			■	■	■	□	1/2	1/2	1	F	
Carex flagellifera	boot strap sedge	■		□	■	1/2	■	1/2	1	F	
Carex solandri		■	■	□	■	1/2	1/2	1/2	2	F	
Centella uniflora	centella	■		1/2	■	1/2	■	1/2	2		
Chionochloa conspicua	hunangāmoho, streambank snowtussock	■	■	1/2	■	□	■	1/2	1		Mainly riparian
Cortaderia richardii	South Island toetoe	■■	■■	■	■	■	■	□	1		Mainly riparian
Dianella nigra	turutu, blueberry		■	□	■	■	■	1/2	2	F	
Gahnia pauciflora	cutty sedge	■		□	■	■	■	1/2	3	F	
Libertia mooreae	mikoikoi, native iris	■	■	□	■	■	■	1/2	2		
Microlaena avenacea	bush ricegrass		■■	1/2	■	1/2	1/2	■	1		
Microlaena polynoda	bamboo ricegrass		■	□	■	■	1/2	1/2	3		
Microlaena stipoides	meadow ricegrass	■		■	■	■	■	1/2	2		
Phormium tenax	harakeke, swamp flax	■	■	■	■	1/2	■	□	1	N	Mainly riparian
Pratia angulata	pānakenake, pratia	■	■	1/2	■	□	■	□	1	F	Mainly riparian
Scutellaria novae-zelandiae	shovel mint		■■	□	■	1/2	□	■	2		Nationally rare
Uncinia banksii	hookgrass		■	□	1/2	■	1/2	1/2	2		
Uncinia uncinata	kamu, hookgrass	■■	■■	1/2	■	□	1/2	■	1		

Lowland hill country

KEY

PLANTING RATIO
relative proportions of plants
■■ = plant commonly
■ = plant less commonly

PLANT PREFERENCES
■ = prefers or tolerates
1/2 = prefers or tolerates some
□ = intolerant of
1= frost hardy
2 = semi-frost hardy
3 = frost tender

TYPE OF FOOD PROVIDED FOR BIRDS & LIZARDS
F = Fruit/seeds
N = Nectar
B = Buds/foliage
I = Insects

Trees

What to plant Botanical name	Māori and/or common name	Planting Ratio		Plant Preferences						Max Heights	Food Type	Notes
				Wet	Moist	Dry	Sun	Shade	Frost			
		Early Stage	Later Stage									
Alectryon excelsus	tītoki		■	□	■	■	□	■	3	5m	F, I	
Aristotelia serrata	makomako, wineberry	■■		1/2	■	1/2	1/2	1/2	2	10m	F, B, I	
Beilschmiedia tawa	tawa		■	□	■	□	□	■	3	20m		
Carpodetus serratus	putaputāwētā, marble leaf	■	■	■	■	□	■	1/2	1	10m	F, B, I	
Cordyline australis	tī kouka, cabbage tree	■		■	■	■	■	□	1	12m	F, N, I	
Cordyline banksii	tī ngahere, forest cabbage tree	■		■	■	■	■	1/2	2	4m	F, N	
Dacrydium cupressinum	rimu, red pine		■■	■	■	1/2	1/2	1/2	1	35m	F, I	
Dodonaea viscosa	akeake	■■	■	□	■	■	■	□	2	7m	I	
Elaeocarpus dentatus	hīnau	■	■■		■	1/2	1/2	1/2	2	18m	F, I	
Elaeocarpus hookerianus	pōkākā	■	■	■	■	□	1/2	1/2	1	12m	F, I	
Fuchsia excorticata	kōtukutuku, tree fuchsia		■■	1/2	■	□	1/2	■	2	10m	F, N, B, I	
Griselinia littoralis	papauma, broadleaf	■	■	□	■	■	■	■	1	15m	F, B, N, I	
Griselinia lucida	puka		■	□	■	■	■	1/2	3	8m	F, B, N, I	
Hedycarya arborea	porokaiwhiri, pigeonwood		■■	1/2	■	1/2	□	■	3	12m	F, I	
Kunzea ericoides	kānuka	■■	■	□	1/2	■	■	□	1	15m	N, I	
Leptospermum scoparium	mānuka, teatree	■		■	■	■	■	□	1	8m	N, I	
Lophomyrtus bullata	ramarama		■	■	■		1/2	■	2	5m	N, F	
Macropiper excelsum	kawakawa		■■	□	■	■	1/2	■	3	6m	F, I, B	Semi-coastal
Melicytus lanceolatus	māhoe wao	■	■	□	■	□	1/2	■	2	6m	F, I, B	
Melicytus ramiflorus	māhoe, whiteywood	■	■■	□	1/2	□	1/2	■	2	10m	N, B, I	
Myoporum laetum	ngaio	■	■	□	■	■	■	□	3	10m	F, N	Semi-coastal
Myrsine australis	māpou	■	■	□	■	■	■	1/2	1	8m	F, I	Slow growing
Nestegis cunninghamii	black maire		■	□	■	□	□	■	2	20m	F, I	
Nestegis lanceolata	white maire		■	1/2	■	1/2	□	■	2	15m	F, I	
Nothofagus fusca	red beech, tawhairaunui	■	■■	□	■	□	1/2	1/2	1	30m	F, N, I	
Nothofagus menziesii	tawhai, silver beech	■	■■	■	■	■	1/2	1/2	1	30m	F, I	
Nothofagus solandri var. solandri	tawhairauriki, black beech	■	■■	□	■	■	■	1/2	1	25m	F, N, I	
Nothofagus truncata	hututawai, hard beech	■	■■	□	1/2	■	■	1/2	2	30m	F, N, I	
Olearia paniculata	akiraho, golden akeake	■■		□	□	■	■	□	2	6m	I	Mainly riparian - dry and rock substrates

Olearia rani	heketara		■	□	■	■	1/2	1/2	2	7m	I	
Pennantia corymbosa	kaikōmako	■	■	■	■	■	■	■	1	12m	F, N, I, B	Slow growing
Phyllocladus aff. alpinus	forest toatoa		■	■	■	□	1/2	■	1	15m	I	
Phyllocladus trichomanoides	tānekaha	■	■	□	■	■	■	1/2	2	20m	I	
Pittosporum eugenioides	tarata, lemonwood	■■	■	1/2	■	■	■	1/2	1	12m	F, I	
Pittosporum tenuifolium	kōhūhū, black matipo	■■	■	□	■	■	■	1/2	1	9m	F, I, B	
Podocarpus hallii	thin-barked tōtara	■	■■	□	■	■	■	1/2	1	20m		
Prumnopitys ferruginea	miro		■	1/2	■	□	1/2	1/2	1	25m	F, I	
Prumnopitys taxifolia	mataī, black pine	■	■■	□	■	■	■	1/2	1	25m	F, I	
Pseudopanax arboreus	whauwhaupaku, five-finger	■■	■	□	■	1/2	1/2	1/2	2	8m	F, N, I, B	
Pseudopanax crassifolius	horoeka, lancewood	■■	■■	1/2	■	■	■	■	1	10m	F, N, I	
Pseudopanax macintyrei	limestone five-finger		■	□	■	■	■	■	2	5m	F, N, I	Only on the inland limestone belt
Rhopalostylis sapida	nīkau		■	1/2	■	□	□	■	3	10m	F, N, I	
Schefflera digitata	patē, seven finger		■	1/2	■	□	1/2	■	2	8m		
Sophora longicarinata	limestone kōwhai	■	■	□	1/2	■	■	1/2	2	10m	N, I, B	Only on the inland limestone belt; nationally rare
Weinmannia racemosa	kamahi		■	1/2	■	1/2	1/2	1/2	1	10m	N, I	

Shrubs

* indicates those that can become small trees, 5-8m

What to plant Botanical name	Māori and/or common name	Planting Ratio Early Stage	 Later Stage	Plant Preferences Wet	 Moist	 Dry	 Sun	 Shade	 Frost	Max Heights	Food Type	Notes
Alepis flavida	yellow mistletoe		■■				■	1/2	2		F, N	Not a suitable revegetation species; nationally rare
Brachyglottis repanda	rangiora	■■		□	■	■	1/2	■	3	*	I	Not a suitable revegetation species
Coprosma areolata	thin-leaved coprosma	■■	■	□	■	1/2	1/2	1/2	2	*5m	F, B	
Coprosma crassifolia	thick leaved coprosma	■■	■	□	1/2	■	■	1/2	1	*	F, N	
Coprosma foetidissima	hūpiro, stinking coprosma		■■	■	■	□	1/2	■	1	*	F	
Coprosma grandifolia	raurēkau		■■	1/2	■	□	1/2	■	3	*6m	F, B	
Coprosma linariifolia	yellow-wood		■■	□	■	1/2	■	■	2	*	F, I	Mainly riparian
Coprosma lucida	shining karamū	■■	■	□	■	■	■	1/2	2	*	F	
Coprosma microcarpa	beech coprosma		■■	□	■	1/2	□	■	1		F	
Coprosma rhamnoides	scrub coprosma		■■	□	1/2	■	■	1/2	1		F, I	
Coprosma robusta	karamū	■■	■	1/2	■	■	■	1/2	2		F	
Coprosma aff. parviflora (=C. “tayloriae”)		■	■	■	■	■	■	1/2	1	*	F	
Coriaria arborea	tutu	■■		1/2	■	■	■	□	2	*	F	
Discaria toumatou	tūmatakuru, prostrate matagouri	■■		□	□	■	■	□	1		F, I	
Dracophyllum filifolium	inaka	■■		□	1/2	■	1/2	1/2	2		I	
Gaultheria antipoda	false beech	■■	■	□	1/2	■	■	1/2	1		F	
Geniostoma ligustrifolium	hangehange		■■	□	■	1/2	1/2	■	3		N	
Hebe divaricata	hebe	■■	■	□	1/2	■	■	1/2	2			Mainly riparian
Hebe gracillima		■■		1/2	1/2	1/2			1			

Hebe stricta var. atkinsonii	koromiko	■■			1/2	1/2	1/2	■	2			
Hebe vernicosa			■■	□	1/2	■	1/2	1/2	2		I	
Helichrysum lanceolatum	niniao		■	□	1/2	■	■	1/2	2			Mainly riparian
Ileostylus micranthus	small-flowered mistletoe		■				■	1/2	2		F, B	Not a suitable revegetation species; nationally rare
Leptecophylla juniperina (=Cyathodes)	prickly mingimingi	■	■■	□	1/2	■	■	1/2	1		F	
Leucopogon fasciculatus	mingimingi	■	■■	□	■	■	1/2	1/2	1		F, I	
Melicope simplex	poataniwha	■	■	□	■	■	■	1/2	2	*8m	I, N	
Melicytus aff. alpinus (=M. "Waipapa")	lowland porcupine shrub	■		□	1/2	■	■	1/2	1		F, N	
Melicytus obovatus	limestone māhoe	■	■	□	□	■	■	1/2	3	*	F	Only on the inland limestone belt
Ozothamnus leptophyllus (=Cassinia)	tauhinu	■■		□	1/2	■	■	□	1		I	
Peraxilla colensoi	pirita, scarlet-flowered mistletoe		■				■	1/2	2		F, N	Not a suitable revegetation species; nationally rare
Peraxilla tetrapetala	pikirangi, scarlet-flowered mistletoe		■				■	1/2	1		F, N	
Pseudowintera axillaris	lowland horopito		■	1/2	■	□	□	■	3	*	F	
Raukaua anomalus	raukawa		■	1/2	■	1/2	1/2	■	1		F, N	
Tupeia antarctica	tāpia, white mistletoe	■					■	1/2	2			Not a suitable revegetation species; locally extinct?

Climbers

What to plant Botanical name	Māori and/or common name	Planting Ratio Early Stage	 Later Stage	Plant Preferences Wet	 Moist	 Dry	 Sun	 Shade	 Frost	Food Type	Notes
Calystegia tuguriorum	powhiwhi, native convolvulus		■■	1/2	■	1/2	■	1/2	2		Can be weedy
Clematis paniculata	puawānanga, bush clematis	■	■	□	■	□	1/2	1/2	2	N	
Freycinetia banksii	kiekie		■■	1/2	■	1/2	□	■	3	F, N, I	Semi-coastal
Metrosideros colensoi	limestone climbing rātā		■	□	■	■	1/2	■	2	N	Only on the inland limestone belt
Metrosideros diffusa	climbing rātā		■	1/2	■	□	1/2	■	2	N	
Metrosideros fulgens	akakura, scarlet climbing rātā		■■	□	■	1/2	1/2	■	2	N, I	
Metrosideros perforata	climbing rātā		■	□	■	1/2	1/2	■	2	N, I	
Muehlenbeckia australis	pōhuehue	■	■	1/2	■	■	1/2	1/2	1	F, I, B	Can become weedy
Parsonsia heterophylla	kaihua, forest jasmine	■	■	□	■	□	1/2	■	2		
Parsonsia capsularis	kaiwhiria, scrub jasmine	■	■	□	■	■	■	1/2	1		
Ripogonum scandens	kareao, supplejack		■■	■	■	□	1/2	■	2	F	
Rubus cissoides	tātarāmoa, bush lawyer	■	■	□	■	1/2	1/2	1/2	2	F	

Ferns

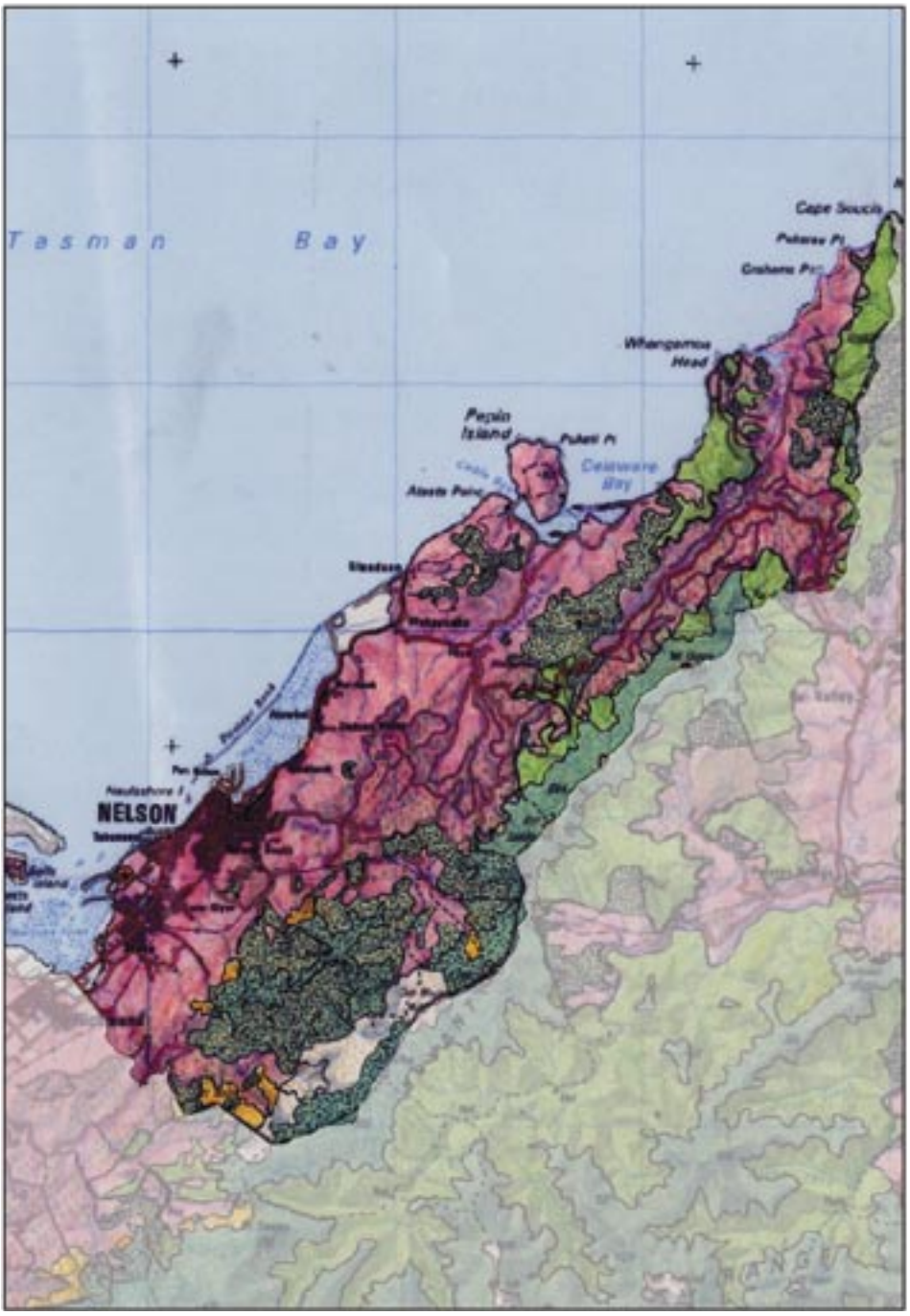
What to plant Botanical name	Māori and/or common name	Planting Ratio Early Stage	 Later Stage	Plant Preferences Wet	 Moist	 Dry	 Sun	 Shade	 Frost	Food Type	Notes
Asplenium gracillimum	manamana, hen & chicken		■■	□	■	1/2		■	3		
Asplenium oblongifolium	huruhuruwhenua, shining spleenwort		■		■	■	1/2	■	3		
Blechnum discolor	piupiu, crown fern		■■	□	■	1/2	1/2	■	2		
Blechnum novae-zelandiae	kiokio	■■		■	■	■	1/2	■	1		
Blechnum procerum	beech kiokio		■■	□	■	1/2	1/2	■	2		
Cyathea dealbata	ponga, silver tree fern	■■	■■	□	■	1/2	□	■	2		
Cyathea medullaris	mamaku, black tree fern	■■	■	1/2	■	□	□	■	3	I	
Cyathea smithii	katote, soft treefern		■	1/2	■	□	□	■	2		
Dicksonia squarrosa	whekī, rough tree fern		■	1/2	■	□	□	■	2	I	
Microsorum pustulatum	kowaowao, hound's tongue		■	1/2	■	□	□	■	2		

Ground covers, grasses, sedges and rushes

What to plant Botanical name	Māori and/or common name	Planting Ratio Early Stage	 Later Stage	Plant Preferences Wet	 Moist	 Dry	 Sun	 Shade	 Frost	Food Type	Notes
Anemanthele lessoniana	gossamer grass		■	□	■	■	■	1/2	2		Confined to alluvium and limestone; nationally rare
Astelia fragrans	kahakaha, forest lily		■	□	■	□	1/2	■	2	F	
Dianella nigra	turutu, blueberry		■	□	■	■	■	1/2	2	F	
Gahnia pauciflora	cutty sedge		■	□	■	■	■	1/2	3	F	
Libertia ixioides	mikoikoi, native iris	■	■	□	■	■	■	1/2	2		
Microlaena avenacea	bush ricegrass		■	1/2	■	1/2	1/2	■	1		
Phormium cookianum	whaririki, coastal flax	■		□	■	■	■	□	1	N	
Uncinia banksii	hookgrass		■	□	1/2	■	1/2	1/2	2		
Unicinia unicinata	kamu, hookgrass	■	■■	1/2	■	□	1/2	■	1		

APPENDIX 1

Loss of lowland native forest in Nelson



Legend

- Cleared lowland forest
- Protected lowland forest
- Unprotected lowland forest *
- Non-forested ecosystems (alpine, wetland, dune, riverbed, cliff and ultramafic vegetation)
- Cleared upland forest
- Protected upland forest
- Unprotected upland forest

* Since map was drafted some of these areas have become protected through covenants.

Shannel Courtney, 1989

APPENDIX 2

Fire resistant native plants

The following plants are relatively fire resistant and can be used as a buffer between likely sources of fire and a forest remnant:

raurēkau (*Coprosma grandifolia*)

tree ferns (*Dicksonia* and *Cyathea* species)

māhoe (*Melicytus ramiflorus*)

taupata (*Coprosma repens*)

tree fuchsia (*Fuchsia excorticata*)

ngaio (*Myoporum laetum*)

karamū (*Coprosma robusta*)

hangehange (*Geniostoma ligustrifolium*)

whararikі, coastal flax (*Phormium cookianum*)

tī kouka/cabbage tree (*Cordyline australis*)

koromiko (*Pennantia corymbosa*)

harakeke, swamp flax (*Phormium tenax*)

tutu (*Coriaria arborea*)

māhoe wao (*Melicytus lanceolatus*)

five-finger (*Pseudopanax arboreus*)

Protection of houses and their occupants from bush fires is a growing concern in rural areas. The Nelson Resource Management Plan contains requirements that dwellings be kept a certain distance from flammable vegetation. However it does allow the use of the low flammability species such as those listed above within these fire separation distances.

APPENDIX 3

Threatened plants of Nelson City

The table below lists all the nationally threatened species that occur, or once occurred in Nelson City and its environs. This includes the area between Cape Soucis in the north and Richmond in the south, and as far inland as the lower slopes of the Bryant Range.

These threatened plants have been recently ranked according to threat of extinction.[1] They have been given a national threat status on the basis of: the number of remaining individuals, the number of remaining populations, the extent of area of occupancy, and rate of decline.

Those with threat status marked with an asterisk (*) are now locally extinct within the area defined above.

Species	Common Name	Threat Status	Habitat
Alepis flavida	yellow mistletoe	gradual decline	grows only on black beech
Atriplex cinerea	grey saltbush	coloniser*	boulder bank and islets
Austrofestuca littoralis	sand tussock	gradual decline*	coastal dunes
Brachyglottis sciadophila	climbing groundsel	gradual decline*	alluvial forest margins
Carex litorosa	delta sedge	serious decline*	river deltas at estuaries
Coprosma obconica	base coprosma	gradual decline	alluvial forest margins
Dracophyllum urvilleanum	inaka	nationally vulnerable	open black beech-hard beech forest on hill country
Epilobium chionanthum	marsh willowherb	gradual decline	lowland, fertile freshwater wetlands
Euphorbia glauca	coastal milk spurge	serious decline*	coastal dunes and open hillslopes with sand deposits
Hypolepis dicksonioides	giant hypolepis	sparse	warm alluvial coastal sites
Korthalsella salicornioides	coral mistletoe	sparse	grows only on manuka and kanuka
Lepidium banksii	coastal peppercress	nationally critical*	boulder bank and islets
Libertia peregrinans	sand iris	gradual decline*	coastal dunes
Melicytus aff. alpinus (= M. “Waipapa”)	lowland porcupine shrub	data deficient	dry hillcountry and boulder bank
Melicytus crassifolius	coastal porcupine shrub	sparse	boulder bank and exposed rocky coast
Melicytus obovatus	limestone māhoe	range-restricted	limestone substrate
Mimulus repens	native musk	sparse	brackish estuary margins and stream mouths
Muehlenbeckia ephedroides	creeping pōhuehue	sparse	exposed, open, coastal hillslopes
Myosotis spathulata	a forget-me-not	sparse*	margins of forested flood channels and river banks
Peraxilla colensoi	scarlet-flowered mistletoe	gradual decline*	grows only on silver beech
Peraxilla tetrapetala	red-flowered mistletoe	gradual decline	grows mainly on black beech
Pimelea aff. arenaria	southern sand daphne	serious decline*	coastal dunes
Poranthera microphylla	poranthera	range-restricted	alluvium derived from mineral belt
Pseudopanax ferox	fierce lancewood	sparse	dry, fertile sites; coastal and limestone hillcountry
Pterostylis porrecta	gaping greenhood orchid	data deficient	alluvium derived from limestone
Raukaua edgerleyi	raukawa	gradual decline	hill country, upland mixed forest

Rorippa divaricata	matangoa	nationally endangered*	coastal forest margin near high tide level
Ranunculus macropus	waoriki	serious decline	coastal freshwater swamps
Scutellaria novae-zelandiae	shovel mint	nationally vulnerable	under mataī-black beech forest on alluvium
Sonchus kirkii	pūhā	gradual decline*	coastal rock-faces exposed to the sea
Sophora longicarinata	limestone kōwhai	range-restricted	limestone
Streblus banksii	large-leaved milktree	sparse*	coastal hillslopes
Tetragonia tetragonioides	NZ spinach	sparse	dunes, and stony beaches along shoreline
Teucridium parvifolium	native germander	gradual decline*	riparian alluvial forest margin and limestone
Trisetum antarcticum	Cook Strait oatgrass	gradual decline*	exposed coastal rock-faces
Tupeia antarctica	white mistletoe	gradual decline	grows on a range of broad-leaved species

1. Hitchmough R (compiler). 2002. *New Zealand Threat Classification Systems Lists - 2002*. Threatened species occasional publication 23, 210p. Department of Conservation, Wellington.

Growing nationally threatened plants from this list

At this stage, the only way people can get hold of rare plants is through local nurseries, or from owners of private property where such plants grow naturally.

As long as the seeds and cuttings are ecosourced, Department of Conservation and Nelson City Council would like to encourage the planting of our local rarities, especially in their right habitats as part of restoration projects. It is in these places that they are most likely to persist and perpetuate themselves. Many of them are very difficult to grow, but with effort it is feasible to get self-maintaining populations of some of these species at new sites.

APPENDIX 4

Cultural uses of native plants

Māori accumulated a vast storehouse of knowledge about the plants of New Zealand. Internal herbal treatments were given for respiratory ailments like asthma, bronchitis and coughs; for stomach, bowel and urinary tract problems; for menstrual and birthing difficulties; and for at least one form of tuberculosis. External treatment using herbs were given for a wide range of skin complaints, including boils, bruises, burns, eczema, leprosy, ringworm, warts, as well as for fractures and wounds.

Some uses are generally described below.

Plant	Use
rimu	to stop bleeding
hīnau	bread making
pukatea	for treating open sores and as a pain killer
māhoe	to carry fire when travelling
horopito	to treat stomach sickness
kamahi	to dye cloaks and to heal wounds
mānuka	for canoe poles, fish traps, fish hooks, gardening implements and weapons. Also used as a laxative and to speed healing.
ngaio	sandfly and mosquito repellent to heal ulcers and toothache
kawakawa	bactericide and fungicide treatments for coughs and colds, toothache and bladder complaint
tī kouka	for stomach complaints
nīkau	to ease birth to make houses, hats, mats, baskets, shoulder bags and leggings
aka	to stop blood flow (aka refers to several species of rātā vine. Metrosideros diffusa and Metrosideros perforata are the common ones.)
mauku	wrapped around hangi food
koromiko	to treat diarrhoea and stomach ache

APPENDIX 5

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