

Native Planting in the Bay Of Plenty

Restoring areas with native plants helps keep our environment healthy and attractive. Natives in our natural areas play a critical role in reducing erosion, improving water quality, and storing carbon.

Natural ecosystems also benefit landowners and communities by beautifying the landscape, supporting native wildlife, improving pollination, providing opportunities for recreation and supporting natural products such as honey.

Lots of our wetlands, dunes, coastal and lowland forest ecosystems are in need of restoration. Native areas have been greatly reduced relative to their natural pre-human extent - some by more than 95 percent. Remnants of these threatened ecosystems provide stepping-stones for wildlife to move through the landscape, and are often the last refuges for rare or endangered native species.

Some examples of goals for restoration planting projects might include:

- Enhancing the area.
- Enlarging an area of existing native vegetation.
- Filling in gaps ('light wells') or the edges of an area of existing native vegetation.
- Attracting native birds and insects.
- Stabilising the soil on steeper slopes.
- Stabilising stream banks.
- Creating a corridor of native vegetation to link with other areas.
- Fully restoring a bare area to its original vegetation.

This factsheet provides information to help landowners and community groups plant natives to successfully

restore areas of indigenous vegetation in the Bay of Plenty.

1. Create a plan

If you intend on planting a large area, it pays to work out a planting plan well in advance. Decide on -

1. What you want to achieve.

What type of habitat are you restoring? This will be important when choosing your plants. For example, if one of your aims is to increase food for native bird species, you will need to plant species that provide fruit and nectar.

2. Where you want to achieve it

It's important to understand your site before deciding what to plant. The physical characteristics of a planting site (e.g. soil type, moisture levels and amount of shelter) determine what plants will thrive. Choosing plants that thrive will increase plant survival. It's a good idea to consider what's growing in nearby natural areas.

3. What's needed to get the job done

You will need to consider the following -

- What site preparation is required (e.g. fencing, pest animal and weed control).
- How many and what kinds of plants you will need for the area.
- How you will obtain the plants you need in time for each planting season.
- Timing for the planting over the year and in the future.

4. How much time and resources are available

Because restoration projects can go on over many years, it's important to think through the costs you're likely to face. These could include -

- Plants and planting labour.

- Fencing materials and labour.
- Mulch.
- Weed control, chemicals & labour.
- Pest animal control chemicals, equipment and labour.

NOTE 1

Check whether any archaeological sites are present on the site. Contact the Bay of Plenty Regional Council for assistance with this.

NOTE 2

Planting is just one approach you can take. Other methods include assisting natural regeneration and establishing a nurse crop, or removing pest plants to allow regeneration of natural species. On some sites, it might be appropriate to use a mix of these options. For tailored advice about which options are best for your site, contact your BOPRC Land Management Officer.

2. Preparing your site

Fencing

Stock and plants don't mix, so it's best to isolate the area you are working in.

- Find the most practical place for a fence to go.
- A seven-wire post and batten fence will keep all stock out. On dairy farms a two or three wire electric fence is ok.
- Make sure there is a big enough buffer between open water, wet areas, your project planting, and the fence. On flat country, a buffer of three to five metres is suitable. In steeper country the buffer needs to be 10 metres or more to be effective at filtering nutrients and capturing sediment.

For the best biodiversity benefits a 10-20 metre buffer is required.

Weeds

Weeds and other vegetation may compete with native plants for light, water and nutrients. Before you plant, clear them.

- Weeds may take one or several attempts, or even years, to get under control.
- Avoid removing or killing native plant species if they are present.
- A dense infestation can be controlled by spraying and/or by mulching. If you are using a mulcher or a digger to clear weeds and scrub make sure you comply with District Council vegetation clearance rules and Bay of Plenty Regional Council earthworks rules.
- About a month before you plant, carry out a pre-plant weed spray (spot-spray) - about 50 centimetres square for every plant. Spot-spraying provides a clear spot free of grasses and other exotic weed species.

Pesky pests

Feral animals can be a problem for young plants. Pest animals like rabbits, hares and possums eat the palatable leaves and pūkeko will pull out sedges and rushes to reach tender shoots.

- Rabbits can be controlled using poison or by night shooting with a spotlight.
- Possums can be poisoned, shot or trapped.
- A permit from Department of Conservation is required to shoot pūkeko outside of the game bird season.

BOPRC Land Management Officers can provide further advice on pest animals and weed control.

3. Planting

What to plant

What you should plant depends on your goals, your site, and what grows naturally in the area. Eco-sourced plants (native plants grown from locally sourced seed and cuttings) should be used as often as possible. This ensures natural plant populations survive.

Some commercial and community nurseries specialise in eco-sourcing or you can propagate your own plants from seeds and cuttings.

Choose plants that are:

- Right for the site.
- Proven species that will guarantee success of your project.
- Sourced very close to or in the same ecological district as the planting site. See the graphic of Ecological Districts in the Bay of Plenty below.
- From a reputable wholesale native nursery.
- Present in local natural areas.

What plant size?

Pot size name	Plant bag size	Size
Root trainer Hilson (RTH)	-	172 ml
Root trainer Tinus (RTT)	-	352 ml
1L	3/4	
1.5L	2	
2L	3	120 x 120 mm diameter
3L	5	140 x 140 mm diameter

- Plants should be sturdy and about twice the height of the pot they are growing in.
- Trees and shrubs should have a well-developed stem and stand sturdy in the pot.
- The root ball should be well established but not root-bound.

There are a wide range of pot sizes and types available.

- Small grades like root trainers (often called RTs) generally take a bit longer to get established and will require care for longer. Larger grades like 2L or PB3 will establish a canopy cover quicker and will require less follow up care. They cost a bit more but are more cost effective in the long run.
- Many wetland species such as *Carex* sedges are usually best purchased as root trainers. Harakeke (flax) is best purchased as bare rooted stock if you can get it.

How big is your planting site?

You'll need to know how big your planting area is to establish how many plants you need. You can do this by pacing it out and calculating the area or by using a GPS unit. If you have access to Google Earth™ and your site is big enough, you might be able to measure it with it's ruler tool.

Plant spacing

Plant spacing is important; how densely you plant effects the establishment time and cost. Planting too close together means you'll need a lot of plants, but planting too far apart means it will take a long time for the individual plants to establish to form a canopy. A lot of maintenance and weed control will be needed.

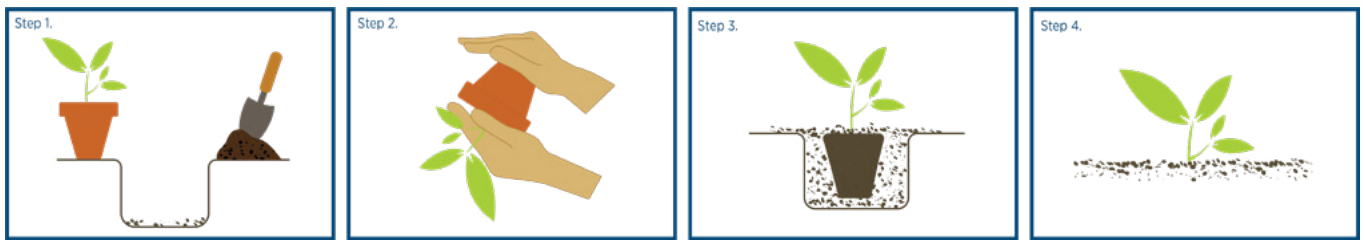
- Spacing of 1.5 metres is required for trees and shrubs.
- Smaller species like sedges and rushes need to be planted much closer together. For most wetland species 0.75 - 1 metres will be fine.
- Large trees should be planted further apart (5 metres or more).

Study the table below to work out how many plants you will need for your site. Multiply your project area (in hectares) by the number in the second column to find how many plants you'll need.

Distance between plants (metres)	Plants per hectare*	Comments
0.5	40,000	Use for small wetland/dune plants
1	10,000	
1.5	4,500	Suitable for most revegetation projects
1.75	3,300	
2	2,500	Use where intensive after-planting care is available
5	400	Large trees planted between smaller species

* A hectare is 10,000m² or 100 x 100 m.

How To Plant



Planting tips

- Lay out your plants before you start (but keep them in their pots so they don't dry out).
- Make sure the whole planting team know where the plants should go.
- Make sure plant species are in the correct environment – for example put water loving plants near the water.
- Wetlands can be planted late summer/autumn when water levels are lower.
- Frost tolerant species can be planted in autumn and frost sensitive plants in spring.
- Warmer coastal sites can be planted during winter.
- Plants that need protection (enrichment species) can be planted a couple of years after the first plantings.
- Don't plant in straight lines; plant randomly to make it look natural.

4. Looking after your investment

The success of a planting project depends on how well it is maintained after planting; keep going!

Clearing grass and other weeds from around the plants will reduce competition for resources like nutrients, moisture, and light and prevent your plants from being smothered.

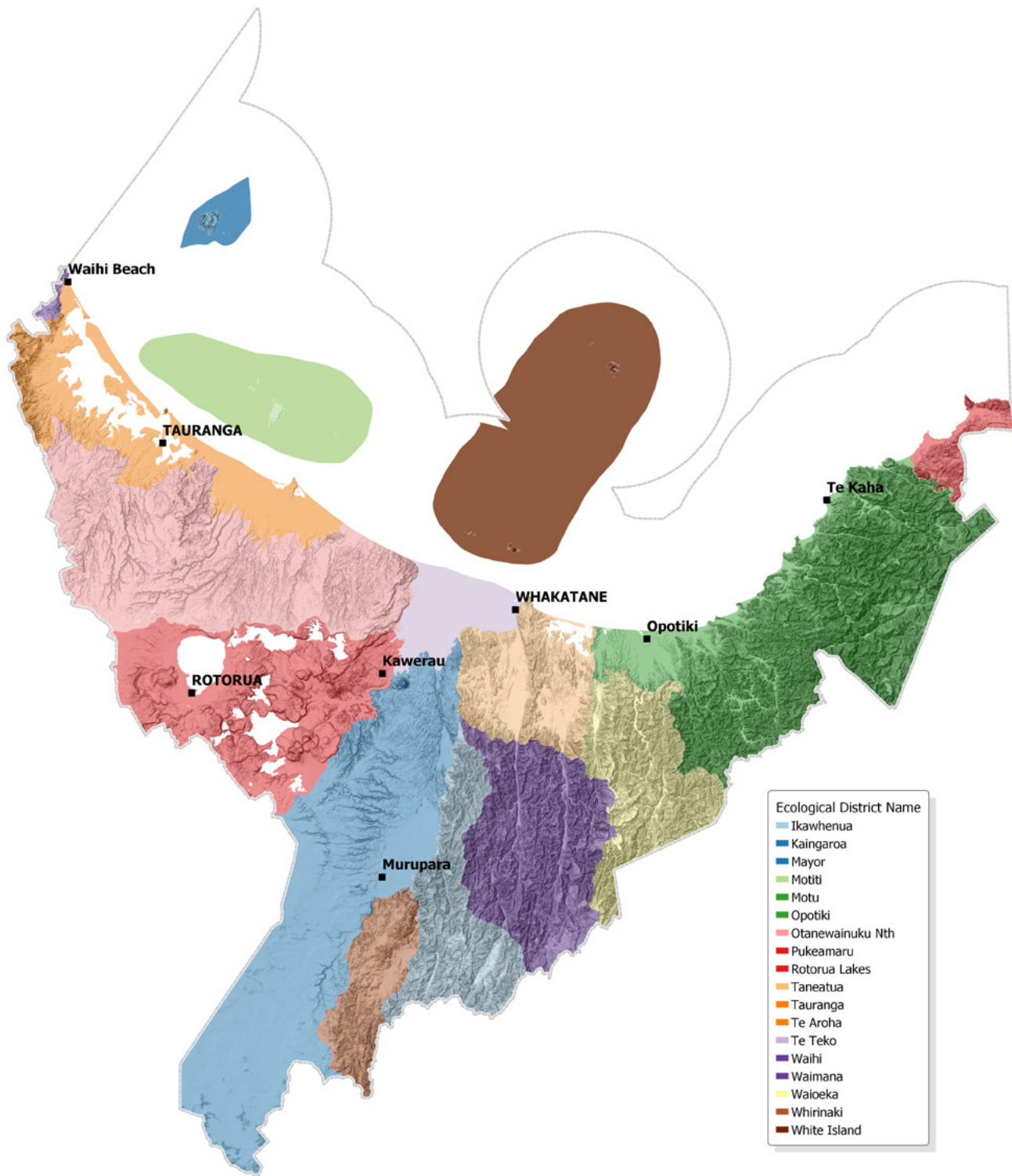
- Maintain plantings at least twice during the first year after planting. Some may require five or six maintenance visits.
- Once plants have over-topped the surrounding weeds only periodic maintenance will be required to ensure that pest plants do not re-establish.

- Spraying is the most cost efficient maintenance method for large areas.
- Glyphosate should be used for maintenance as it is largely deactivated in the soil.
- Other specific sprays will kill specific weeds. Contact your Land Management officer for advice.
- Extra care should be taken when using chemicals around other plants.
- Don't spray when it is windy!
- Hand weeding, trampling, or chipping grass and weeds away with a spade or shovel will also work.
- Check your fences – don't let stock get back in.
- Look out for signs of pest animals – increase your level of control if needed.

Schedule

The table below will help you decided what should be done in what month and in what order.

Activity	Timing	Repetition
Year 1		
Weed control	December – February	At least twice - species dependent (could be for a number of years)
Fencing	February – April (before planting)	
Spot spray for planting	April – May	Once; one month before planting
Pest animal control	April – May	Species dependent
Planting	April – August	Once
Plant releasing	October – December	At least twice - site dependent
Assess site requirements for following year	October – November	At least once
Year 2		
Plant releasing	March – February and October – December	At least once - site dependent
Infill planting	April – August	Once
Assess site requirements for following year	October – November	At least once
Year 3 and following years		
Plant releasing	March - February and October – December	At least once - site dependent
Assess site requirements for following year	October – November	At least once



Other Helpful Resources

Wetland Restoration guide
www.boprc.govt.nz/media/29543/Guide-090618-WetlandRestorationGuide.pdf

Coastcare help and tips
www.boprc.govt.nz/sustainable-communities/care-groups/coast-care/coast-care-brochures-and-newsletter/

Dune Trust
www.dunetrust.org.nz/

Dairy New Zealand riparian planner
www.dairynz.co.nz/environment/waterways/riparian-planner/

NZ Plant Conservation Network
www.nzpcn.org.nz

Weedbusters
www.weedbusters.co.nz

Funding options

One Billion Trees Programme – Te Uru Rakau:
www.teururakau.govt.nz

Other brochures in this series

Land Management Factsheets
<https://www.boprc.govt.nz/your-council/documents-and-publications/fact-sheets/>

Select your plant species to match the Ecological District, habitat, physical site characteristics and altitude.

Scientific Name	Common name	Physical Site Characteristics	Proportion of Plantings	Good for bees?	Bioclimatic Zone (Geographic Extent)
<i>Apodasmia similis</i>	Oioi	E	1, 2		C (all)
<i>Aristolelia serrata</i>	Makomako	D	3		C, L, M (all)
<i>Austroderia fulvida</i>	Toetoe	D, FW, S	1		C, L, M (all)
<i>Brachyglottis repanda</i>	Rangiora	D	3		C, L, M (all)
<i>Carex secta</i>	Pūkio	FW (adjacent to water)	1		C, L, M (all)
<i>Coprosma lucida</i>	Shining karamū	D	3		C, L, M (all)
<i>Coprosma propinqua</i>	Mingimingi	FW, D	3	Yes	C, L (all)
<i>Coprosma repens</i>	Taupata	S	1		C (all)
<i>Coprosma robusta</i>	Karamū	D	1	Yes	C, L, M (all)
<i>Coprosma tenuicaulis</i>	Hukihuki, swamp coprosma	FW, D	4		C, L (all)
<i>Cordyline australis</i>	Ti kōuka, cabbage tree	D, FW	4		C, L, M (all)
<i>Coriaria arborea</i>	Tutu	D	3		C, L, M (all)
<i>Corynocarpus laevigatus</i>	Karaka	D	2		C, L (all)
<i>Cyperus ustulatus</i>	Upokotangata, coastal cutty grass	D, FW, E	1, 2		C, L (all)
<i>Dacrycarpus dacrydioides</i>	Kahikatea, white pine	D, FW	2		C, L, M (all)
<i>Dacrydium cupressinum</i>	Rimu	D	2		C, L, M (all)
<i>Dodonea viscosa</i>	Akeake	S	1		C (all)
<i>Eleocharis sphacelata</i>	Kuta, paopao	O	1		C, L (all)
<i>Griselinia littoralis</i>	Kāpuka, broadleaf	D	1		Montane only (R3)
<i>Hebe stricta</i>	Koromiko	D	1	Yes	C, L, M (all)
<i>Hoheria sexstylosa</i>	Houhere, lacebark	D	3	Yes	C, L, M (R2)
<i>Juncus kraussii</i> var. <i>australiensis</i>	Sea rush	E	1, 2		C (all)
<i>Knightia excelsa</i>	Rewarewa	D	2	Yes	C, L, M (all)
<i>Kunzea robusta</i>	Kānuka	D	1, 2		C, L, M (all)
<i>Kunzea toelkenii</i>	Thornton kānuka	D	1		C (R6)
<i>Laurelia novae-zelandiae</i>	Pukatea	FW	2		C, L (all)
<i>Leptospermum scoparium</i>	Mānuka	D, FW	1		C, L, M (all)
<i>Machaerina articulata</i>		O	1		C, L (all)
<i>Melicytus ramiflorus</i>	Māhoe	D	3		C, L, M (all)
<i>Metrosideros excelsa</i>	Pōhutukawa	D	2		C, or Rotorua Lakes margins
<i>Metrosideros robusta</i>	Northern rata	D	2		C, L, M (all)
<i>Myoporum laetum</i>	Ngaio	D	1, 2		C (all)
<i>Ozothamnus leptophyllus</i>	Tauhinu	D	1		C (all)
<i>Phormium cookianum</i>	Wharariki	D	4(D); 1(FW)	Yes	C, L, M (all)
<i>Phormium tenax</i>	Harakeke, flax	D, FW	4(D); 1(FW)	Yes	C, L, M (all)
<i>Pittosporum colensoi</i>	Rautāwhiri, black māpou	D	3	Yes	C, L, M (R5)
<i>Pittosporum crassifolium</i>	Karo	D	1, 2		C (all)
<i>Pittosporum eugenioides</i>	Tarata, lemonwood	D	2	Yes	C, L, M (R4)

Scientific Name	Common name	Physical Site Characteristics	Proportion of Plantings	Good for bees?	Bioclimatic Zone (Geographic Extent)
<i>Pittosporum tenuifolium</i>	Kōhūhū	D	4		C, L, M (all)
<i>Plagianthus divaricatus</i>	Mākaka, shore ribbonwood	E	1, 2		C (all)
<i>Podocarpus totara</i>	Totara	D	2		C, L, M (all)
<i>Prumnopitys ferruginea</i>	Miro	D	2		C, L, M (all)
<i>Prumnopitys taxifolia</i>	Matai	D	2		C, L, M (all)
<i>Pseudopanax arboreus</i>	Whauwhaupaku, Five finger	D	3	Yes	C, L, M (all)
<i>Pseudopanax lessonii</i>	Houpara	D	1, 2		C (all)
<i>Schoenoplectus tabernaemontani</i>	Kāpūngāwhā	O	1		C, L (all)
<i>Sophora microphylla</i>	Kōwhai	D	3		L (Ro)
<i>Sophora tetraptera</i>	Kōwhai	D	3		C, L (R1)
<i>Syzygium maire</i>	Swamp maire	FW	2		C, L (all - frost sensitive)
<i>Typha orientalis</i>	Raupō	O	1		C, L (all)
<i>Vitex lucens</i>	Pūriri	D	2	Yes	C (all)

Key

Physical Site Characteristics

E Estuarine wetland

S Coastal rear sand dunes (excluding foredunes)

FW Wetlands with water table at or near the surface

D Dryland

O Open water (water table above ground surface)

Proportion of Plantings

- Plantings to mainly comprise the species in this category; matched to the physical site characteristics identified for this species.
- Final plantings to include at least 500 plants/ha of all species in this category within habitats that are suitable for this species (identified in the "Physical Site Characteristics" column for each species) at completion of planting.
- Use these species sparsely in plantings (this species should comprise 1% or less of the plants scheduled for an individual site).
- In most situations, plantings should not comprise more than 5% of these species.

Bioclimatic Zone

C Coastal - within 500 m of coast.

L Lowland - extending from the coastal zone up to an altitude of c.300 m.

M Montane - submontane and montane - above 300m.

(Geographic extent)

Ro Rotorua Lakes Ecological District

RI Only plant in these areas: Kāingaroa, Whirinaki, Ikawhenua, Waimana, and Mōtū Ecological Districts (or those general areas).

R2 Only plant in these areas: Tauranga, Rotorua Lakes, Ōpōtiki, Kāingaroa, Whirinaki, Ikawhenua, Waimana, Waioeka, Mōtū, and Pukeamaru Ecological Districts (or those general areas).

R3 Only plant in these areas: upland areas of Te Aroha, Ōtānewainuku, Rotorua Lakes, Kāingaroa, Whirinaki, Ikawhenua, Waimana, Waioeka, and Mōtū Ecological Districts (or those general areas).

R4 Only plant in these areas: Te Aroha, Tauranga, Ōtānewainuku, Rotorua Lakes, Kāingaroa, Whirinaki, Ikawhenua, Waioeka, and Mōtū Ecological Districts (or those general areas).

R5 Only plant in these areas: Te Aroha, Mayor Island, Ōtānewainuku, Rotorua Lakes, Tāneatua, Kāingaroa, Whirinaki, and Ikawhenua Ecological Districts (or those general areas).

R6 Restricted to coastal zone on the Rangitāiki Plains, Ōhope, Ōhiwa Dunes, and Whangakopikopiko Island in Ōhiwa Harbour.



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