

Ngā riu me ngā puketai tuawhenua

Inland basins, valleys and hillsides

Lowland broadleaf-podocarp forest once covered most of Wellington's inland basins and valleys, less than 5% remains today. Rimu towered above a dense canopy of broad-leaved trees like kohekohe, tawa and hīnau. Epiphytic Northern rātā, that started its life as a seedling in the crook of a tall tree branch would have grown up to emerge as a forest giant. Kahikatea, pukatea, miro, mataī, and tōtara stood tall across the forests, their branches decorated with perching lilies, hanging orchids, epiphytic ferns and shrubs. Below the tallest trees a rich sub-canopy of nīkau, supplejack, māhoe, porokaiwhiri and kawakawa provided food and habitat for kākā, kākāriki, bellbird, tūi, insects, tuatara and geckos.

Otari-Wiltons Bush and the gullies of the Wellington Botanical Garden are two examples of the few remnants of old forest remaining. They are being preserved by the significant efforts of council and community members. These areas are very important seed sources for natural regeneration and for collecting seed to grow seedlings.



Nōhanga Habitat



Wellington forest vegetation sequence

A range of conditions occur in inland gullies and hillsides. Gullies and valleys tend to have higher moisture content and more fertile soils. Hillslopes are freer draining and have higher sunlight. Wind conditions depend on the aspects of the gully or hillslope, some offering shelter from prevailing winds and others funnelling wind across the landscape.

Kererū are important for seed dispersal in Wellington's forest as they are the only bird that actively disperses larger fruits. Flying long distances between forested areas, browsing on foliage as well as fruits such as tawa, miro, hīnau and matai.



Kererū feeding on hīnau by T Stoddard, Kererū Discovery

Te whakatō tipu

Planting

The aim of restoration planting for these areas is to increase (or create) the buffer zone around any existing vegetation to protect it and create ‘stepping-stones’ or corridors of planted areas that connect forest remnants to each other across the landscape. This extends the habitat and food sources for birds like tūī, kākā, tieke, kererū, and other wildlife. As birds are attracted to newly established plantings, they disperse seed which slowly regenerates the forest ecosystem.

Gullies are often the easiest areas to establish plants, having more shelter and generally deeper soils with year-round moisture available, ideal for plants like kahikatea and pukatea. A shelter layer is still needed using species from the early stage/primary plant list. Once this has established, around three to five years, the next tier of plants can be added.

“My key recommendation for a site like this - keep it native - non-natives don't survive! Find out what plants are suited to your site and just choose a few hardy species at the beginning to create some shelter. Add in trees you like, to attract birds, later on. Fertilise, water and weed the plants for the first few years or they will struggle. Think about your neighbours too - I used lower growing plants anywhere that might affect their views.”

Ian McGregor, Crofton Downs



Plants in the Takapu Stream gully, 3 years after planting in 2014. They established very well, using plant species able to survive heavy frosts and strong wind gusts funnelling through the valley. Pukatea and kahikatea are now establishing within the closed canopy.

Further up the hillsides (ie the mid-slopes but not tops of ridges and spurs) where there is more wind, poorer soils and full sun, use a smaller range of plant species until shelter can be created. Identify the prevailing winds, light levels and aspect of your site, this will help to choose plants from the list.

Tips for planting basins, gullies and hillslopes

Choose hardy early stage plants that can tolerate strong winds and drought and can grow well in full sunlight. Once these have established, introduce a greater diversity of trees and shrubs.

If you are on hillslopes, mulch around trees when planted and water if possible.

If your site is a gully, start in the lower parts where there is good moisture and shelter and work up the gully and out towards the ridges over time.

Inland areas can be affected by frost so choose plant species and individual plant locations carefully to avoid frost damage. Areas with more wind flow will usually be frost-free and support a greater range of species.



(Left) A typical hill slope with a range of conditions as you go uphill, from a sheltered gully to the ridge line. The plant selection would need to change for the environmental conditions in each zone.

Example of restoration planting on an upper inland hillside in Crofton Downs



(Above, left) November 2014. Site preparation included removing all the gorse and cutting the grass. Plants were sourced from a commercial nursery, planted with compost and watered. I McGregor



(Middle) January 2017. Three years into the project toetoe, flax and grasses start to create shelter. At this stage weed control was critical. I McGregor

(Below) August 2018. Pittosporums showing through, grasses, toetoe and flax have completely covered the ground. I McGregor

Plant list for inland gullies and basins

Inland gullies and basins		Life form	Plant preferences & tolerances				Abundance	
Māori/ Comon name	Botanical name	Plant type	Soil moisture needs	Light levels	Frost tolerant	Wind tolerant	Early stage	Later stage
Round leaved coprosma	<i>Coprosma rotundifolia</i>	Tree to 5m	Semi-moist	Semi-shade	✓	Moderate	++	
Houhere / Lacebark	<i>Hoheria sexstylosa</i>	Tree up to 18m	Semi-moist	Semi-shade	✓	✓	++	
Kanono / Large leaved coprosma	<i>Coprosma grandifolia</i>	Tree, to 6m	Semi-moist	Semi-shade	✓ When mature	✓	++	
Karamū	<i>Coprosma robusta</i>	Tree to 6m	Semi-moist to dry	Sun to semi-shade	✓	✓	++	
Kawakawa	<i>Piper excelsum</i>	Tree	Semi-moist	Shade	Frost tender	Sheltered		++
Kōtukutuku / Tree fuschia	<i>Fuchsia excorticata</i>	Tree	Semi-moist	Semi-shade	✓ When mature	Sheltered	+	
Māhoe	<i>Melicytus ramiflorus</i>	Tree	Semi-moist	Semi-shade	✓ When mature	Moderate		++
Makomako / Wineberry	<i>Aristotelia serrata</i>	Tree	Semi-moist	Sun to semi-shade	✓ When mature	✓	+++	
Patē/ seven-finger	<i>Schefflera digitata</i>	Tree to 8m	Semi-moist	Semi-shade	✓ When mature	Moderate		++
Porokaiwhiri / Pigeonwood	<i>Hedycarya arborea</i>	Tree	Semi-moist	Semi-shade	✓ When mature	Moderate		++
Ribbonwood	<i>Plagianthus regius</i> (Churton Park, Glenside, Tawa only)	Tree to 15m	Semi-moist to moist	Semi-shade	✓	Moderate		+
Whauwhaupaku / Fivefinger	<i>Pseudopanax arboreus</i>	Tree to 6m	Semi-moist	Sun to semi-shade	✓	✓	+++	

+ use sparingly ++ use commonly +++ use plentifully ✓ yes • categorised

Plant list for inland hillslopes

Inland gullies and basins

Māori/ Common name	Botanical name	Requires shelter	Plant type		Plant preferences & tolerances					Abundance	
			North facing exposed to wind & sun	South aspect, shady, sheltered, higher moisture level	Plant type	Soil moisture needs	Light levels	Frost tolerant	Wind tolerant	Early stage	Later stage
Kanono/ Large leaved coprosma	<i>Coprosma grandifolia</i>		•	•	Broadleaf shrub 6m	Semi moist	Semi shade	✓	✓		+
Round leaved coprosma	<i>Coprosma rotundifolia</i>	•		•	Bushy shrub 5m	Semi moist	Semi shade	✓	Moderate		++
Karamū	<i>Coprosma robusta</i>		•	•	Bushy shrub 6m	Semi moist	Sun or semi shade	✓	✓	+++	
Kānuka	<i>Kunzea robusta</i>		•		Tree up to 15m	Dry to Semi moist	Sun	✓	✓		++
Māpou	<i>Myrsine australis</i>		•	•	Bushy shrub 6m	Semi moist	Sun or semi shade	✓	✓	+++	
Kaikōmako	<i>Pennantia corymbosa</i>	•		•	Dense tree 8m	Semi moist	Semi shade	✓ When mature	Moderate		+
Whauwhaupaku / Fivefinger	<i>Pseudopanax arboreus</i>		•	•	Bushy tree 6m	Semi moist	Sun or semi shade	✓	✓		++
Horoeka / Lancewood	<i>Pseudopanax crassifolius</i>	•	•	•	Bushy tree 10m	Semi moist	Semi shade	✓	✓		++
Koromiko	<i>Veronica stricta</i>		•	•	Bushy shrub 2-4m	Dry to Semi moist	Sun	✓	✓	+++	

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Plant list for inland hillslopes (cont.)

Inland gullies and basins				Plant type Plant preferences & tolerances					Abundance		
Māori/ Common name	Botanical name	Requires shelter	North facing exposed to wind & sun	South aspect, shady, sheltered, higher moisture level	Plant type	Soil moisture needs	Light levels	Frost tolerant	Wind tolerant	Early stage	Later stage
Rangiora	<i>Brachyglottis repanda</i>		•		Large shrub 6m	Semi moist	Semi shade	✓ When mature	✓	++	
Thin leaved coprosma	<i>Coprosma areolata</i>		•	•	Shrub 5m	Semi moist	Sun to Semi shade	✓	✓	++	
Tī kōuka/ Cabbage tree	<i>Cordyline australis</i>		•	•	Tree up to 20m	Moist	Sun	✓	✓	+	
Mānuka	<i>Leptospermum scoparium</i>		•		Small tree 5m	Moist	Sun	✓	✓	+++	
Māhoe	<i>Melicytus ramiflorus</i>	•	•	•	Tree up to 15m	Semi moist	Semi shade	✓ When mature	Moderate		++
Coastal tree daisy	<i>Olearia solandri</i>		•		Bushy shrub 5m	Semi moist	Sun	✓	✓	++	
Tarata / Lemonwood	<i>Pittosporum eugenioides</i>		•	•	Tree 12m	Semi moist	Sun to Semi shade	✓ When mature	✓	+	
Köhühū	<i>Pittosporum tenuifolium</i>		•	•	Small tree 10m	Semi moist	Sun or semi shade	✓	✓	++	
Makomako/ Wineberry	<i>Aristotelia serrata</i>	•		•	Small tree 10m	Semi moist	Sun or semi shade	✓ When mature	✓	+++	

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"It's critical to source the right pittosporum, mānuka, kānuka and hebes for your project. These plants are highly variable across New Zealand."

Anita, Wellington City Council