

# Ngā puketai me ngā awaawa takutai

## Coastal hillsides and gullies

Coastal forest in Wellington City has a character all of its own. Unlike other parts of the country where pohutukawa is the iconic coastal species, in Wellington our coastal forests are naturally dominated by Northern rātā and kohekohe along with ngaio, akiraho, wharangi and kōwhai. Remnants of old coastal forest cling to the steep Wellington harbour escarpment stretching along the motorway from the Ngauranga Gorge to Petone and survive in pockets in gullies around the South Coast. A good example well worth visiting is Te Hape Stream in Te Kopahou Reserve where spectacular tree hebe are interwoven with native jasmine and native clematis.

In the past, geckos, skinks and tuatara would have scurried through the forest floor amongst tīti, little penguin and kiwi burrows. The forest would have been alive with insects in summer and kākā, tīeke and tūi would be heard squawking through the trees.

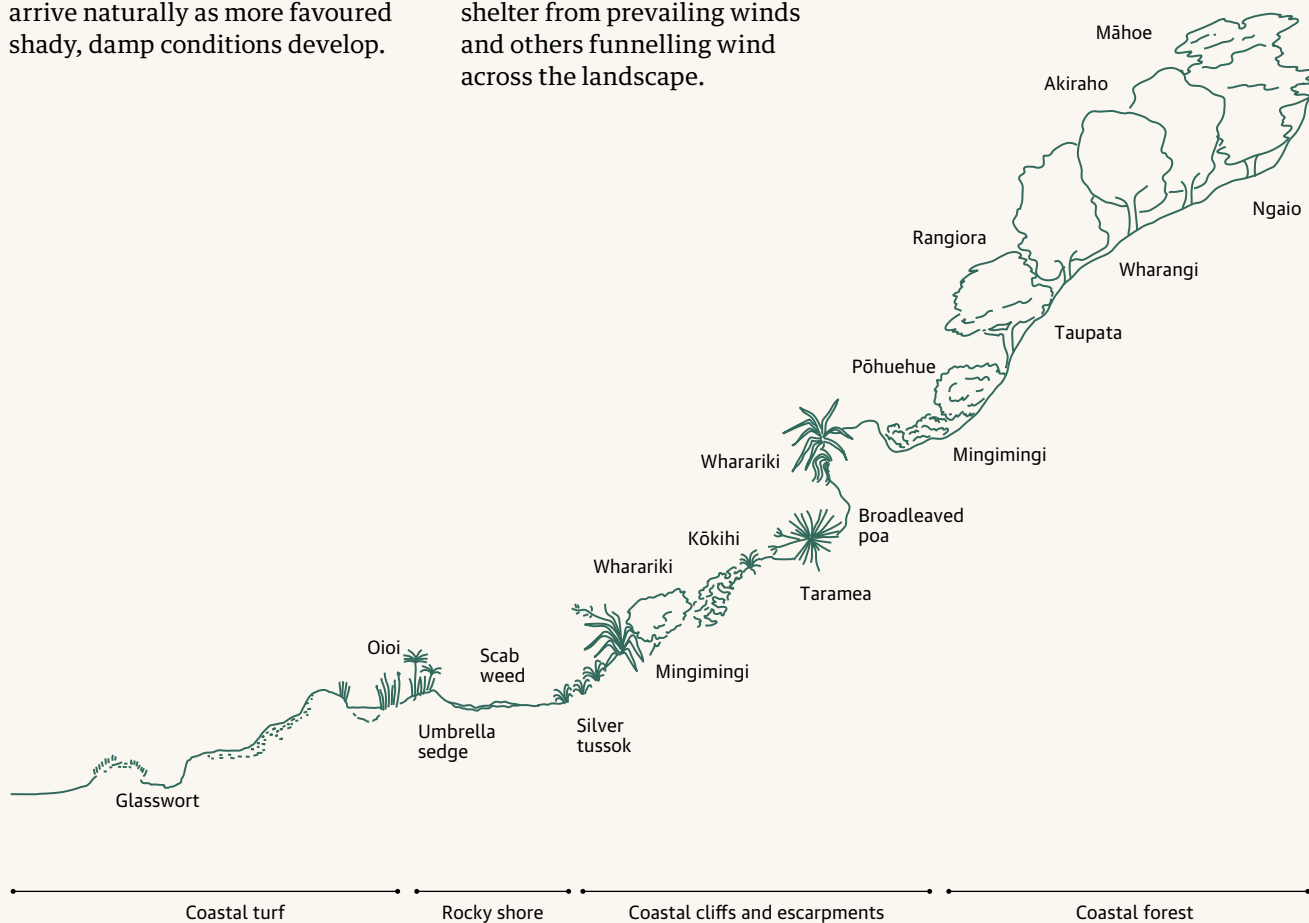
The surviving forest remnants and the areas being restored are very important for the returning native wildlife. Helping to restore and plant additional sites will extend the habitat and feeding grounds for these species.



# Nōhanga Habitat

Forests grow in layers over time. Hardy shelter plants like kānuka and mānuka will grow first and provide shelter to species like kohekohe, wharangi and māhoe to grow through and form a canopy. Taller ‘emergent’ trees will grow through this canopy. Ferns, ground covers and forest floor shrubs often arrive naturally as more favoured shady, damp conditions develop.

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



# Te whakatō tōmua/matua

## Early stage/initial planting

The goal of early stage restoration planting in coastal forests is to establish shelter. Select early stage species from the plant list on the next page spread.

Coastal forest often establishes first in gullies, where there is more shelter and moisture, then gradually spreads out into more exposed, drier zones. This is a useful model to follow with restoration planting.



(Above) Coastal forest in Te Kopahau Reserve, starting to establish in gullies.

(Right) Well established coastal forest on the Harbour escarpment, predominantly māhoe and wharangi. Some species won't tolerate being planted directly into windy, salt laden sites - for example, even though māhoe covers much of Wellington's hills, it is difficult to establish without shelter.



(Below) Coastal forest early stage plants on exposed site, Oku St



# Te whakatō ā muri ake/whakarākei

## Later stage/enrichment planting

Once shelter has been established and a canopy of low shrubs is visible (three to five years) the next stage of vegetation can be added. These trees and shrubs will eventually form the coastal forest canopy. Many of them are not wind tolerant when they are young, but will be once they mature.

### Tips for planting on coastal hillsides and in gullies

Choose early stage species to create shelter. Plants that are frost tender, have low wind tolerance or need shade, will not survive open conditions.

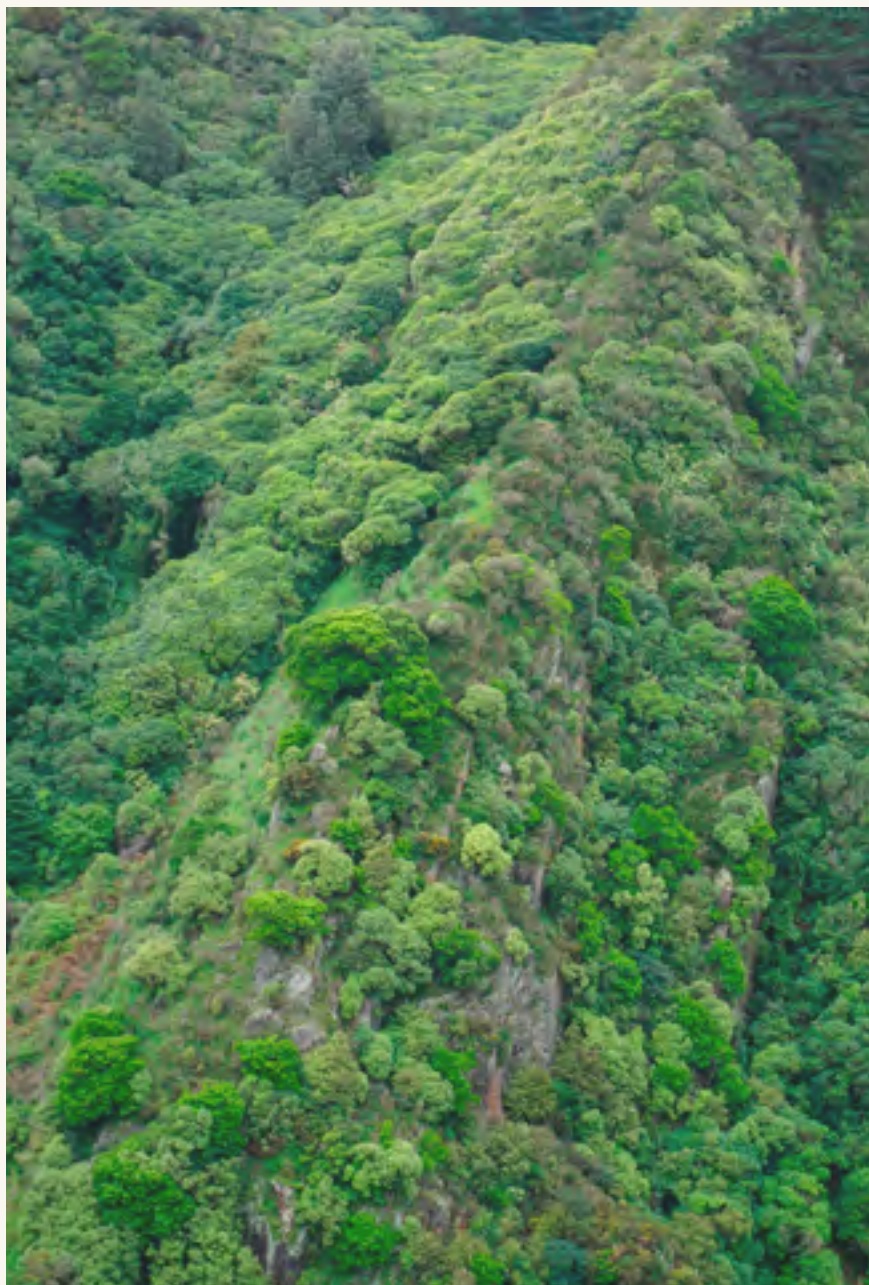
Choose smaller, stockier plants that have been hardened to coastal salt and wind before planting, often plants straight from the nursery can be too "soft" for coastal conditions. Harden off seedlings by slowly exposing them to the salt air while they are still in their planter bags.

Plant at around 1m spacings using the sheltered side of rocks, existing vegetation (including gorse) as shelter. Use tree shelters to reduce wind exposure and damage by rabbits or possums.

In areas where soil moisture is low, consider using crystal rain to improve the conditions, or water the plants. See *Restoration Planting Techniques* for the Wellington Conditions for further information.

Once shelter is established, or where shelter already exists, plant in between existing species with later stage/enrichment plants. Timing is important, as these plants are still dependent on light for good growth. Plant before the canopy closes.

Control weeds around both planted and naturally occurring native seedlings.



(Above) Taller canopy species starting to emerge through a māhoe canopy. A lone nīkau and rewarewa, top centre of the gully. Akapuka and akiraho colonise the exposed ridges, Ngauranga Gorge.

## Plant list for coastal forest in gullies and on hillsides

Māori/ Common name	Botanical name	Life form			Plant preferences & tolerances				Abundance	
		Exposed hillsides	Sheltered sites / gullies	Under canopy	Soil moisture needs	Light levels	Frost tolerant	Wind tolerant	Early stage / initial planting	Later stage / shelter established
Akapuka	<i>Griselinia lucida</i>	•	•		Bushy shrub to 5m or epiphyte	Dry to semi-moist	Sun	Frost tender	✓	+
Akiraho / Golden akeake	<i>Olearia paniculata</i>	•	•		Dense shrub, 4m	Dry to semi-moist	Sun	✓	✓	++
Coastal tree daisy	<i>Olearia solandri</i>	•			Bushy shrub 2 -3m	Dry to semi-moist	sun	✓	✓	++
Common broom	<i>Carmichaelia australis</i>	•			Bushy shrub 3m	Well drained	Sun	✓	✓	+
Cotula	<i>Leptinella squalida subsp. squalida</i>			•	Herb	Semi-moist to dry	Sun to shade	✓	✓	+
Whauwhau- paku	<i>Pseudopanax arboreus</i>	•	•		Small tree, up to 6m	Semi-moist	Sun to semi- shade	✓	✓	++
Hangehange / NZ privet	<i>Geniostema ligustrifolium var. ligustrifolium</i>		•		Small tree, up to 3m	Semi-moist	Shade	Frost tender	Sheltered	+
Tree Hebe	<i>Veronica parviflora</i>	•	•		Bushy shrub 2-4m	Semi- moist	Sun	✓	✓	+++
Hīnau	<i>Elaeocarpus dentatus</i>		•		Canopy tree, 20m	Semi-moist	Semi- shade	✓ When mature	Sheltered	+
Kaihua / NZ jasmine	<i>Parsonsia heterophylla</i>	•	•		Climber,	Semi-moist	Semi- shade	✓	Moderate	+
Kaikōmako	<i>Pennantia corymbosa</i>		•		Small tree, up to 8m	Semi-moist	Sun to semi- shade	✓ When mature	✓	+
Kānuka	<i>Kunzea robusta</i>	•	•		Tree up to 10m	Dry to semi moist	Sun to semi- shade	✓	✓	++
Karamū	<i>Coprosma robusta</i>		•		Small tree, up to 5m	Semi-moist	Sun to semi- shade	✓	✓	+

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

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		Exposed hillsides	Sheltered sites / gullies	Under canopy	Soil moisture needs	Light levels	Frost tolerant	Wind tolerant	Early stage / initial planting	Later stage / shelter established	
Karamū / Shining karamu	<i>Coprosma lucida</i>	•	•		Small tree, up to 3m	Semi moist to dry	Sun to Semi- shade	✓	✓	++	
Kawakawa	<i>Piper excelsum</i>		•	•	Shrub, up to 4m	Semi-moist	Semi- shade to shade	Frost tender	Sheltered		++
Kohekohe	<i>Dysoxylum spectabile</i>		•		Canopy tree, 15m	Semi-moist	Semi- shade	Frost tender	Sheltered		++
Köhühū	<i>Pittosporum tenuifolium</i>		•		Small tree, up to 6m	Semi-moist	Sun to semi- shade	✓	✓	+	
Koromiko	<i>Veronica stricta</i>	•	•		Shrub, up to 4m	Semi-moist	Sun	✓	✓	+++	
Kötukutuku / Tree fuchsia	<i>Fuchsia excorticata</i>		•		Small tree, up to 6m	Moist	Shade	✓ When mature	Sheltered		+
Kōwhai	<i>Sophora microphylla</i>		•		Small tree, up to 8m	Dry to semi-moist	Sun	✓	✓		+
Māhoe / Whitey wood	<i>Melicytus ramiflorus</i>		•		Small tree, up to 8m	Dry to semi-moist	Semi- shade	✓ When mature	Moderate		++
Mānuka / Tea tree	<i>Leptospermum scoparium</i>	•	•		Small tree up to 5m	Semi-moist to wet	Sun to semi- shade	✓	✓	++	
Māpou / Red matipou	<i>Myrsine australis</i>	•	•		Small tree, up to 5m	Semi-moist	Semi- shade	✓ When mature	✓	++	
Mikoikoi / NZ iris	<i>Libertia grandiflora</i>			•	Flax-like shrub, 0.7m	Dry to semi-moist	Sun to semi- shade	✓	✓		++
Mikoikoi / NZ iris	<i>Libertia ixioides</i>			•	Flax-like shrub, 0.7m	Dry to semi-moist	Sun to semi- shade	✓	✓		++
Mingimingi / Twiggy coprosma	<i>Coprosma rhamnoides</i>	•	•		Shrub, up to 2m	Semi-moist	Sun	✓	✓	+++	

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Ngaio	<i>Myoporum laetum</i>	•	•	Dense tree, up to 7m	Semi-moist	Sun	✓ When mature	✓	++	
Nīkau	<i>Rhopalostylis sapida</i>		•	Palm tree, up to 10m	Moist	Shade	Frost tender	Sheltered		+
Porokaiwhiri/ Pigeonwood	<i>Hedycarya arborea</i>		•	Tree up to 15m	Dry to semi-moist	Semi-shade	✓ When mature	✓		+
Rangiora	<i>Brachyglottis repanda</i>	•	•	Shrub, up to 8m	Semi-moist	Sun	✓ When mature	✓	+	
Tarata / Lemonwood	<i>Pittosporum eugenioides</i>		•	Tree, up to 12m	Dry to semi-moist	Sun to semi-shade	✓ When mature	✓		+
Tauhinu	<i>Ozothamnus letophyllus</i>	•		Shrub, up to 3m	Dry	Sun	✓	✓	+++	
Taupata	<i>Coprosma repens</i>	•	•	Shrub / small tree up to 4-6m	Semi-moist	Sun	✓ When mature	✓	++	
Tawa	<i>Beilschmiedia tawa</i>		•	Canopy tree, up to 24m	Semi-moist	Shade	Frost tender	Sheltered		+
Ti kōuka/ Cabbage tree	<i>Cordyline australis</i>	•	•	Tree up to 20m	Moist	Sun to semi-shade	✓ When mature	✓	+	
Titoki / New Zealand ash	<i>Alectryon excelsus subsp. excelsus</i>		•	Tree, up to 17m	Dry to semi-moist	Semi-shade	Frost tender	Moderate		+
Toetoe	<i>Austroderia toetoe</i>	•		Tussock-like grass up to 4m	Semi-moist	Sun	✓	✓	+++	
Wharangī	<i>Melicope ternata</i>		•	Shrub, up to 8m	Dry	Semi-shade	Frost tender	Sheltered		+
Wharariki	<i>Phormium cookianum subsp. hookeri</i>	•		Herb/ flax	Dry to semi-moist	Sun	✓	✓	+++	

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