Native Forest Restoration Frameworks

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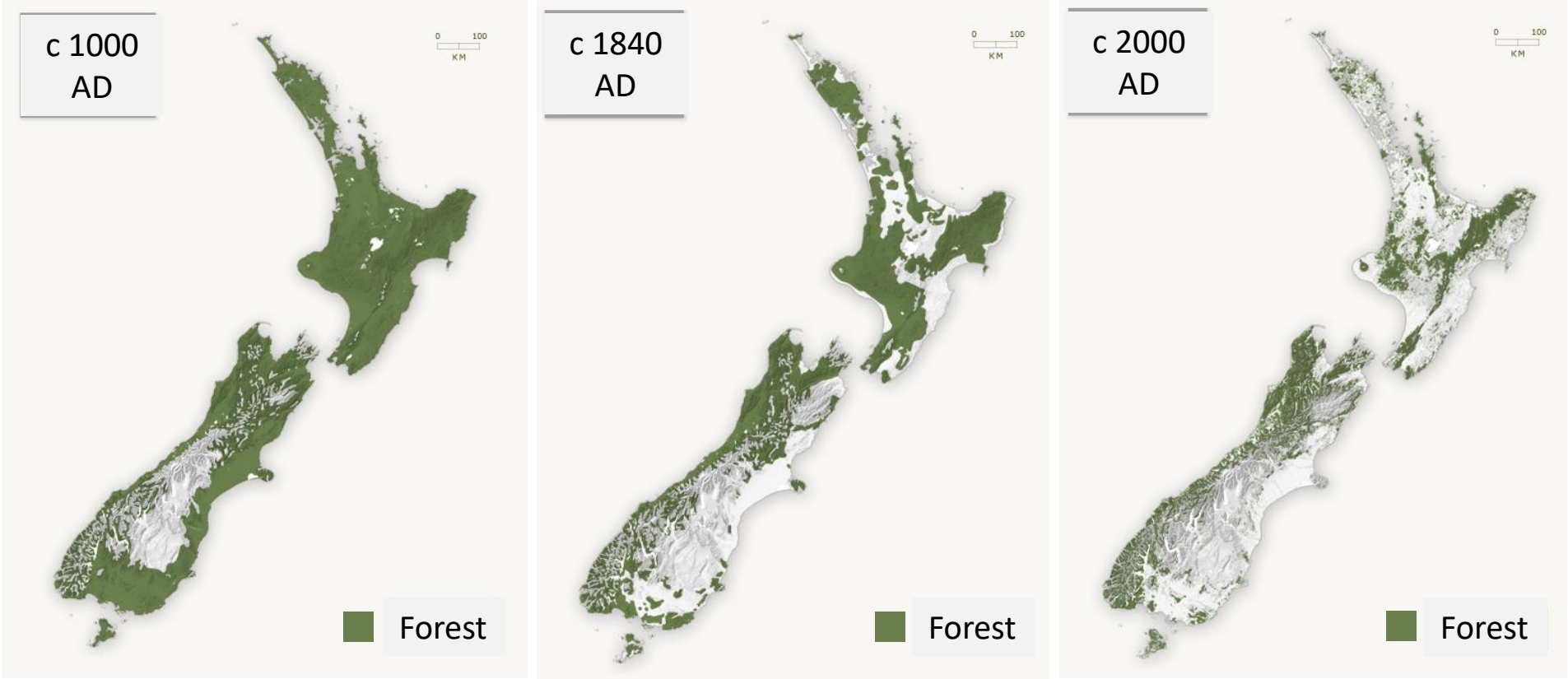
Pterostylis montana


Rhopalostylis sapida

1. Why go native?
2. What to plant
3. Other considerations
4. Benefits of native forests

Why go native?



Images: www.teara.govt.nz

Irene River, Fiordland

Rimu forest, South Westland


Viola filicaulis
© Jane Gosden


Corybas oblongus
© Jane Gosden


Pittosporum divaricatum
© Jane Gosden


Pseudowintera colorata
© Jane Gosden


Titipounamu
© Jane Gosden


Tūī
© Jane Gosden


Ngirungiru
© Jane Gosden


Pīpipi
© Jane Gosden

Where to start?

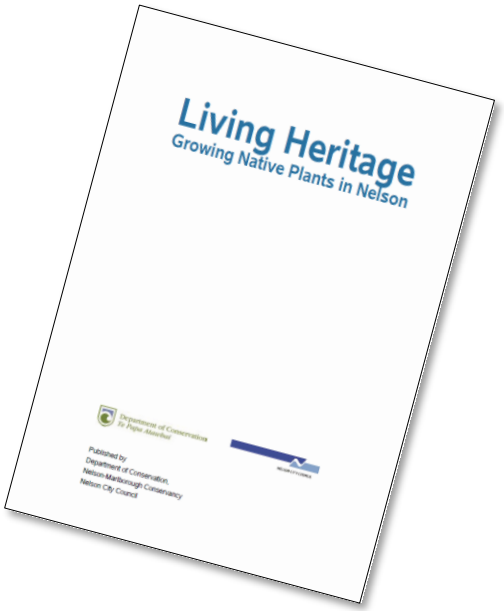
Otago farm


Earina mucronata

What to plant?

Create a planting list appropriate to your site:

- Coastal hill country
- Lowland hill country



Main ingredients
= Nursery crop and early stage successional species

Species	Common Name	%
Kunzea ericoides	Kānuka	80
Coriaria arborea	Tutu	10

+

Flavours
= Bird attracting plants, diversity

Leptospermum scoparium	Mānuka	4
Olearia paniculata	Akiraho	3
Sophora microphylla	Kōwhai	3

=

Icing on the top
= late stage successional species

Prumnopitys taxifolia	Mataī	50
Dysoxylum spectabile	Kohekohe	50

Nursery crop species

Tutu

(*Coriaria arborea*)

Good for low fertility/rocky soils

Native early successional species

Kānuka

(*Kunzea* species)

Good for low fertility rocky soils

Native early successional species

Gorse

(*Ulex europaeus*)

Grows just about anywhere

Exotic early successional species

Attracting Birds

Flowers

Nectar and pollen producing.

e.g. *Fuchsia excorticata*

Fruit

Fleshy fruit attract birds (and lizards).

e.g. *Coprosma* species

Insects

Flowers with nectar and pollen

Leaves attract herbivorous insects

e.g. *Griselinia littoralis*

Late stage species

Kahikatea

(*Dacrycarpus dacrydioides*)

Lowland hill slopes and alluvial terraces.

Produces ‘fruit’ for birds.

Pirita

(*Alepis flavida*)

Flowers and fruit for birds and insects.

An aspirational species to reintroduce…

Kāmahi

(*Weinmannia racemosa*)

Flowers with nectar and pollen

Leaves attract herbivorous insects

e.g. *Weinmannia racemosa*

Natural colonisers

Orchids

(*Caladenia lyallii*)

Tiny, dust like seeds and windborne.

Many species could arrive, this one prefers kānuka forests.

Ferns

(*Lomaria discolor*)

Small spores, wind dispersed.

Many species tolerant of a range of habitats, this one prefers some moisture and shade.

Fleshy fruited plants

(*Coprosma propinqua*)

Birds (and lizards and some insects) can move seeds inside and outside their bodies.

Coprosma are particularly common around Nelson

Slope stabilising natives

Species	Common name	Type of erosion	Succession stage
Alectryon excelsus	Tītoki	Mass movement	Late
Aristotelia serrata	Makomako	Sheet and rill	Early
Austroderia species	Toetoe	Sheet and rill	Early
Coprosma propinqua	Mingimingi	Sheet and rill	Early
Cordyline australis	Tī kouka	Mass movement	Early
Coriaria arborea	Tutu	Sheet and rill	Early
Dacrycarpus dacridioides	Kahikatea	Mass movement	Late
Kunzea ericoides	Kānuka	Sheet and rill	Early
Leptospermum scoparium	Mānuka	Sheet and rill	Early
Phormium tenax	Harakeke	Sheet and rill	Early
Pittosporum eugenioides	Tarata	Sheet and rill	Early
Podocarpus totara	Tōtara	Sheet and rill	Early
Sophora microphylla	Kōwhai	Sheet and rill	Early

Low flammability species

Species	Common name	Successional stage	Flammability
Pseudopanax arboreus	Puahou	early	Low
Geniostoma rupestre	Hangehange	Late	Low
Fuchsia excorticata	Kōtukutuku	Early	Low
Myrsine australis	Māpou	Early	Low
Phormium tenax	Harakeke	Early	Low
Coprosma robusta	Karamū	Early	Low
Dysoxylum spectabile	Kohekohe	Late	Low
Sophora microphylla	Kōwhai	Early	Low/Mod
Myoporum laetum	Ngaio	Early	Low/Mod
Griselinia littoralis	Kāpuka	Early	Low/Mod
Aristotelia serrata	Makomako	Early	Low/Mod
Melicytus ramiflorus	Māhoe	Late	Low/Mod
Pittosporum tenuifolium	Rautāwhiri	Early	Low/Mod

Wyse et al. (2016) *A quantitative assessment of shoot flammability for 60 tree and shrub species supports rankings based on expert opinion*. International Journal of Wildland Fire

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Eco-sourcing plants

Why eco-source?

- Adaptations to local environment
- Maintain genetic diversity
- Lower chance of spreading disease

Exceptions?

- Re-introducing plants that are locally extinct

Planting

Season

Spacings

Plant size

Fertiliser

Guards/stakes

Fencing

Nelmac Nursery Photo ©Nic Stuart

Dacrycarpus dacridioides

© Jane Gosden

Weeds

- Vine weeds
  - e.g. Old m
    banana pas
    climbing aspa
    Japanese honeys
- Ground covers
  - e.g. Tradescantia, periwinkle, African club moss
- Shade tolerant woody weeds
  - e.g. Sycamore, woolly nightshade,

BUT….what about gorse and broom??!

Solanum mauritianum

Hinewai

30 year restoration project

Minimal intervention

Clematis paniculata ©


1987
2018
Photo:www.lowndeslaw.com

Monitoring and adaptive management

Photopoints

- Permanently marked
- GPS if possible
- Take photos at least annually

Adaptive management

- A broad term for being flexible in your approach:
- Repeat plantings if they are doing well
- Change your species mix if things aren't working

Photo: Te Ara


Astelia nervosa © © Jane Gosden

Other ways to start a forest

Seed bombs

Aerial sowing

Laying mānuka/kānuka slash

Drilling seeds into the soil


Pterostylis banksii

Covenants

QEII

DOC

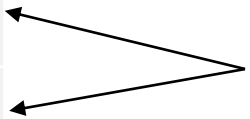
Register it privately

Benefits of native forest – for you

- Minimise landslides and erosion.
- Native vegetation cover helps stock
- Benefits to your wellbeing by being in nature
- Native species support native insects = crop pollination
- Native species in grasslands prevent can increase grass growth under trees and shrubs in drier summer months
- You can sell the value of your ecosystem as part of your brand
- Filter the water = cleaner streams
- Less run off as the forest floor and leaf litter intercepts the water before it reaches the valley floor

Your native plant restoration checklist

	Item
✓	Decide to plant natives
	Create a planting list
	Eco-source plants
	Plant
	Stakes, guards, fertiliser
	Weed control
	Fencing
	Monitor – photo points
	Review initial plan
	Infill plant – late successional species
	Covenant



Get advice from
an ecologist, botanist,
local nursery, NCC,
QEII, DOC….

Glenduan, Nelson

Ecological Services

Regardless of the terrain – green spaces, rivers, coasts, streams, farmland and deep bush – Nelmac has the expertise and resources to establish new plantings or to restore native ones to achieve better ecological outcomes.

PLANTING AND RESTORATION SERVICES

Waterway and coastal enhancement and restoration

Riverbank vegetation control, including debris removal

Cycle track planning, construction and maintenance

Conservation reserves and green spaces

Native revegetation planting and maintenance

Ecological restoration of land

Noxious weed control and removal

Pest control

Biosecurity services

Waterways maintenance and care

Project management through every stage of the process

Liaising with other service providers, landscape architects, planners and contractors

Application and management of consent processes

Stakeholder management and communication

Managing budgets and on-time delivery

Nelmac offers practical planting and restoration solutions that are innovative and meet ecological outcomes based on sound, applied science. With expertise in the regeneration of tracks and trails, waterways and wetlands as well as deep bush and farmlands, our team can advise on and implement any restoration plan. Our Nursery team grows and supplies a wide range of quality plants.

To transfer the knowledge and experience of our team to the next generation, we have partnered with the Nelson Marlborough Institute of Technology. Trainee Ranger graduates have the opportunity for employment with Nelmac to apply and hone their skills in conservation and recreation management.

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