# Project Mahitahi

## Maitai Mahitahi Planting Guide

This Planting Guide has been developed to assist landowners in the Maitai Mahitahi Catchment to understand the methodology and plant species that are best suited to enable restoration of native vegetation that is unique to this part of Whakatū/Nelson.

## Regenerating and Restoring the catchment aims to:

- Provide shade and habitat for birds, fish, lizards, and invertebrates.
- Improve native biodiversity in the catchment.
- Enhance the amenity values of the catchment.
- Prevent erosion and soil degradation.
- Improve water quality.
- Save and enhance existing forest remnants.

## Why restore and regenerate native forest

Once upon a time, not that long ago, the mission in Nelson was to clear native forest, to allow for grazing and cropping. Nelson had very little suitable agricultural land, so every piece that could be wrested from the bush was valuable. Many will have seen the early pictures of the Maitai Mahitahi Valley showing hops growing near the end of Nile St.

The Maitai Mahitahi Valley and catchment has seen many changes over the past few centuries, from quarrying for Argillite by Māori, to mining for copper and other minerals, to farming and forestry. The Valley changed rather dramatically with the building of the Maitai Dam, completed in 1987, and the ongoing settlement of the valley as we see today.

Restoration of native forest and protecting our waterways is now a key objective to conservation. However, it requires the energy of everyone, from the small projects on private sections to the ambitious national projects aimed at making a difference to people's impact on the planet.

Restoration is helping save species from decline, expanding ecosystems and saving our future.

You too can play your part in this ambitious project of restoring the Matai Mahitahi Valley

### *Step 1. Understand your environment*

- What are you trying to achieve?
- Observe your environment through the seasons – how dry is it in summer, how wet in winter, does it flood, is it steep, is it frosty. What birds and animals are present?
- Note these key items down to help you develop your plan.
- What opportunities are there for improvement.
- How much time, resources and energy do you have?

**My Environment**

### *Step 2. Understanding "Eco-sourcing"*

Plants have genetically evolved over millennia to suit the environment in which they naturally grow. That is why you find salt tolerant plants near the coast and small twisted trees at the snowline.

For a successful planting project, to maintain the particular character and genetic integrity for a specific area, it is advisable to use plants specific to that area. Avoid native plants that do not belong naturally to the district, for example Hoheria populnea, North Island Lacebark. Although native to NZ, it has the potential to become a weed as it grows prolifically in the Nelson region despite not being endemic to here.

Be careful to get the true species for a restoration planting, not the hybrids or garden varieties bred for aesthetic purposes.

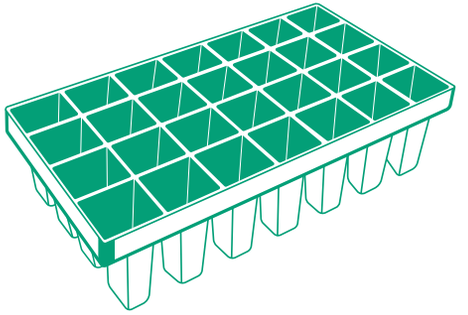
*North Island Lacebark*

### *Step 3. Seek Advice*

- Council has a range of resources to assist with restoration projects. You may be eligible for financial assistance depending on what you are aiming to achieve.
- Check whether you need consents for such things as realigning banks or building retaining walls.
- Understand requirements and setbacks relating to spraying near waterways.
- Any disturbance of riverbeds will require a resource consent.
- Speak to the Sustainable Land Manager or an Environmental Programmes Advisor at NCC.

### *Step 4. Prepare a Planting Plan*

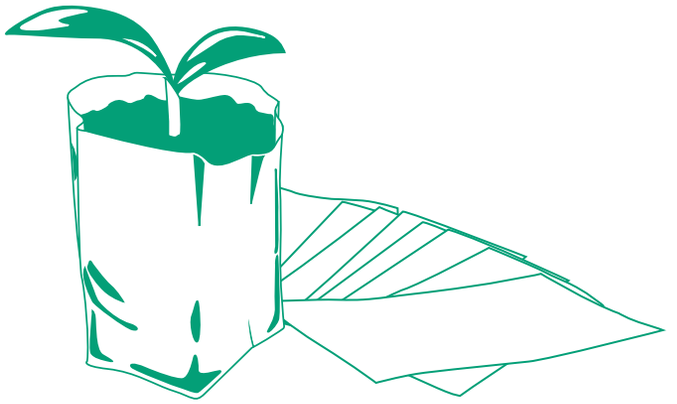
- From step one, where you have evaluated what you are trying to achieve, identify the different planting zones you are working with.
- Consider the slope, the aspect, the purpose of the planting, proximity to water (will it be affected by flooding), shady or sunny.
- Work out the area you are planning to plant in square metres. There are a range of tools that will assist you in doing this. Top of the South Maps has an area tool to help you work this out.
- Compile a list of plants based on the list in this document that will meet the criteria of your site. For example, use plants that are shade tolerant for shady areas or ones that will cope with wet feet if it is a damp area.
- Base your spacings on the size that the plant will grow to and what you are trying to achieve. For example, for restoration plantings, you are aiming to cover the ground as quickly as you can to shade out grass so 1 plant per square metre spacings for shrubs with 5 metre spacing between larger trees will achieve this outcome.
- If planting near streams or flowing water, you need to be careful not to impede water flow, so keep flaxes out of stream beds or channels. Carex secta however is ideal as it will bend over in floods and helps stabilise stream banks.
- Plant in zones identified in your plan. For example, Carex on the stream edge, moving up through shrubs like Hebe and Toe Toe, to trees on the upper banks.
- If you look to nature for your inspiration, you will see that plants grow best in groups of similar plants. Try not to get a salt and pepper effect but rather a swathe of plants or groups of 3-5 trees and differing heights within your planting. Again, in nature you will see 3 distinct layers in the bush – the groundcovers, the shrub layer to 5 metres, and then the large canopy trees.



**My Planting Plan**

### *Step 5. Order your plants early*

- Once you have your plan confirmed, order your plants from a reputable nursery which specialises in eco sourced plants.
- Plants are grown in a range of different ways including root trainers, PB Bags, and pots. Cost is a factor to consider and the larger the grade, the more expensive it is likely to be.
- Consider where you are planting as carrying pots up steep hills can be quite time consuming and difficult, compared to root trainers where you have quite compact plants that are easy to transport.
- Keep your plants well-watered as drying out is the worst thing that can happen prior to planting.



### *Step 6: Planting Times*

- Soil moisture levels must be adequate for successful planting.
- In Nelson, this is generally between April and the end of August before the SW winds set in.
- Plants need to be hardened off before planting so check with your supplier that this has occurred.
- Be careful of planting frost tender species when there is still a likelihood of frost. They may need to be protected.
- Planting in Autumn is ideal as plants have the chance to grow some white root before the cool winter temperatures slow growth and this gives them a head start in the spring.

### *Step 7. Preparing your site*

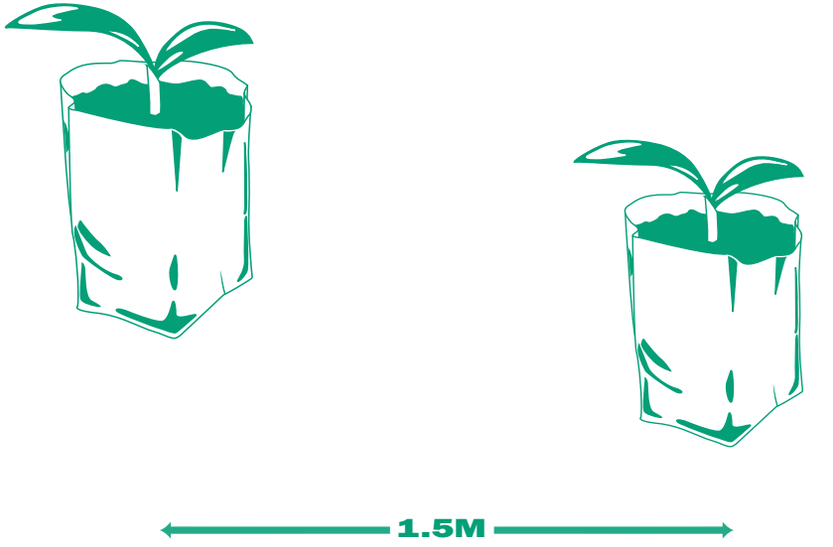
- Good site preparation is the key to successful plant establishment.
- Grass and weeds are your enemy in a successful restoration planting so the cleaner you can have your site before you plant, the better success you will have.
- There are a range of methods to prepare your site, from the use of manual clearing including scrub-barring, mowing, and digging over, to the use of chemicals to kill vegetation.
- Choose a method that best suits you but ensure that any invasive weeds or scrambling weeds such as blackberry and old man's beard have been removed.
- Clear all vegetation on a 500mm radius around your proposed planting hole.
- When digging the hole for your plant, the aim is to create space for the plant's roots to run so breaking up as much of the subsoil as possible is ideal. Don't create a perfect hole with firm sides that looks a bit like a pot as the roots may struggle to break through the sides.

### *Step 8: Setting out your plants*

- Getting your spacings and groupings of plants right is a key to successful planting.
- A sound methodology is to use bamboo canes to mark out where you plan to put your plants.
- Space them at 1 – 1.5 metre spacings ensuring you don't have straight lines (You don't see straight lines in nature).
- The first thing you put out is your large trees. Use the canes to guide you to where to lay them out at 5 metre spacings and plant these first.
- Then infill using the canes to guide you, with your smaller shrubs and grasses again ensuring you are getting groups of plants, not a salt and pepper effect.
- Do not lay out more than you can plant at any one time as you do not want them to dry out.

### *Step 9: Planting*

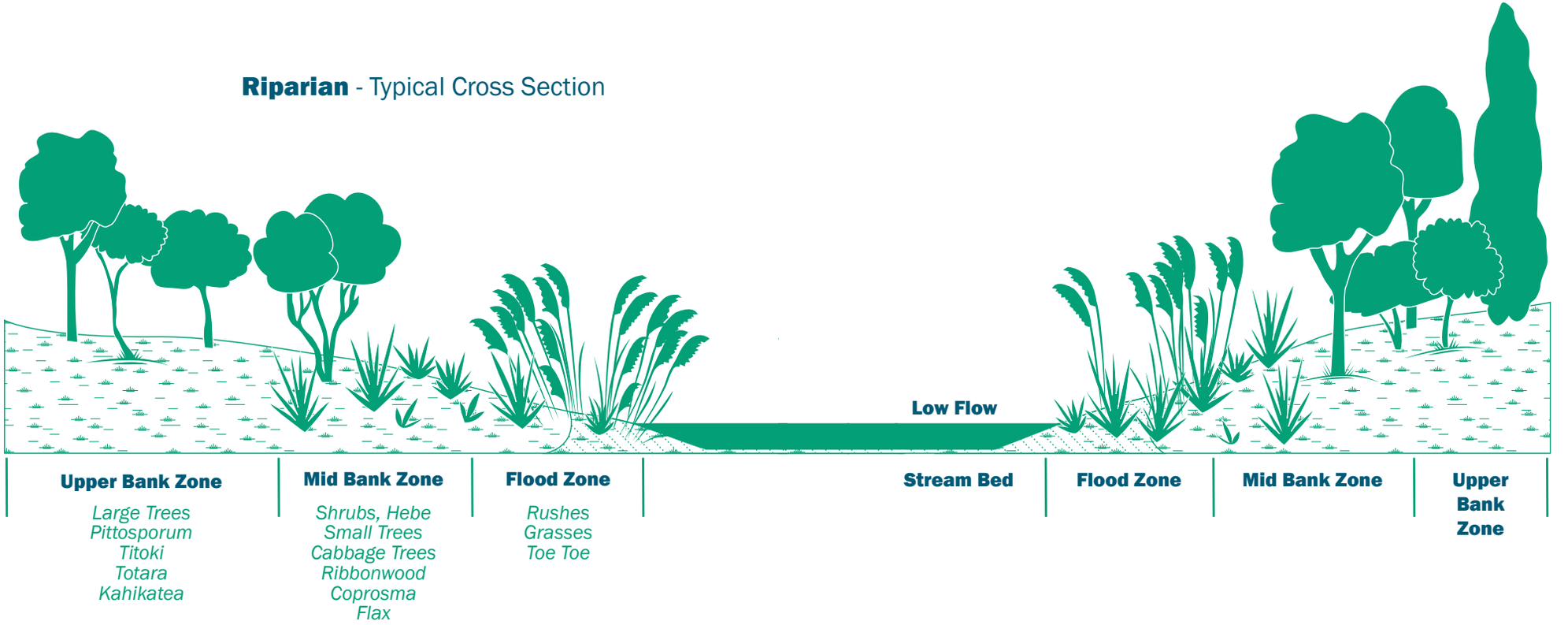
- Remove the stake and lay the stake on the ground so as not to create a risk to your eyes.
- Prepare your hole to receive the plant making sure you are disturbing the subsoil to allow for the roots to penetrate.
- Make sure the hole is deep enough to take the entire root ball.
- Drop the plant into the hole ensuring the soil line matches the adjacent ground level.
- Pack the soil back around the hole firmly but not so hard that it is compacted.
- Place the stake back beside the plant and fit a plant guard if you are using one.
- You may use fertiliser if the soil is particularly poor but do not use it near stream edges.
- Use a granular slow-release fertiliser scattered around the base of the plant. About 1 tablespoon full per plant.
- Mulching with a bark mulch is beneficial. Mulch up to 10cm depth in sites where it is not likely to get washed away.



### *Step 10: Ongoing Maintenance*

- This is the key to successful establishment.
- Keep weeds and grass away from your growing plants. Plan on at least 3-4 maintenance visits per year.
- Methods for control can be both manual or chemical, but if using chemical control be extremely careful not to get any on your plants. Beware of chemicals with long half lives or the tendency to travel in the soil.
- The aim of your planting is to get your plants up and growing as fast and as strongly as possible.

**Riparian** - Typical Cross Section



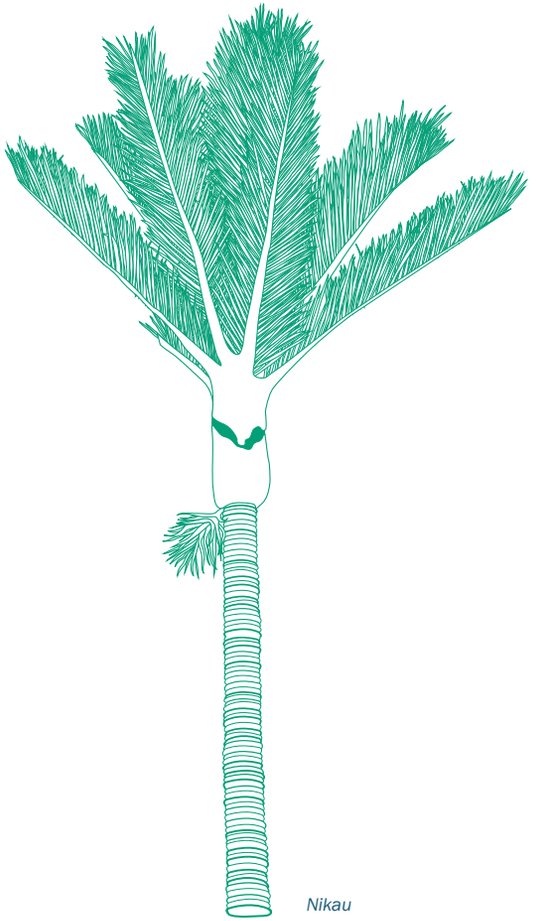
| Tolerates | | Sun | Wet | Dry | Wind | Shade |
|---|---|---|---|---|---|---|
| **Interesting Maitai Species** | | | | | | |
| *Metrosideros Umbelliata* | *Southern Rata* | ✓ | × | ✓ | ✓ | ✓ |
| *Rhopalostylis Sapida* | *Nikau* | × | ***part*** | × | ✓ | ✓ |
| *Griselinia Lucida* | *Puka* | ✓ | ***part*** | ✓ | ✓ | ✓ |
| *Coprosma Rotundifolia* | *Round Leaved Coprosma* | ***part*** | ✓ | × | × | ✓ |
| *Phyllocladus Trichomanoides* | *Tanekaha* | ✓ | × | × | ***part*** | ***part*** |
| *Myrsine Divaricata* | *Weeping Mapou* | × | ***part*** | × | ✓ | ✓ |
| *Melicytus Micranthus* | *Swamp Mahoe* | × | ***part*** | × | ✓ | ✓ |
| *Teucridium Parvifolium* | *Native Germander* | ✓ | ***part*** | ***part*** | ✓ | ***part*** |
| *Clematis Paniculata* | *Bush Clematis* | ✓ | ***part*** | ✓ | ✓ | × |
| *Anemanthele Lessoniana* | *Gossamer Grass* | ✓ | × | ✓ | ✓ | ***part*** |
| *Libertia Mooreae* | *Native Iris* | × | ***part*** | ***part*** | × | ✓ |
| *Pratia Angulata* | *Pratia* | ✓ | ✓ | × | ✓ | × |
| *Scutellaria Novae-Zelandiae* | *Shovelmint* - *Needs dappled light* | × | ***part*** | × | ✓ | ***part*** |
| *Brachyglottis Sciadophila* | *Climbing Groundsel* | ✓ | ***part*** | × | ✓ | ***part*** |
| *Pseudopanax Ferox* | *Fierce Lancewood* | ✓ | ***part*** | ***part*** | ✓ | ***part*** |
| **Low Flammability Species** | | | | | | |
| *Coprosma Grandifolis* | *Raurekau* | × | ✓ | × | ✓ | ✓ |
| *Dicksonia & Cyathea Species* | *Tree Ferns, Ponga* | × | ***part*** | ***part*** | ✓ | ✓ |
| *Melicytus Ramiflorus* | *Mahoe* | ✓ | ***part*** | ✓ | ✓ | ✓ |
| *Coprosma Repens* | *Taupata* | ✓ | × | ✓ | ✓ | × |
| *Fuchsia Excorticata* | *Tree Fuchsia* | × | ✓ | × | × | ✓ |
| *Coprosma Robusta* | *Karamu* | ✓ | ✓ | ✓ | ✓ | ✓ |
| *Cordyline Australis* | *Ti Kouka, Cabbage Tree* | ✓ | ✓ | ✓ | ✓ | ✓ |
| *Pennantia Corybosa* | *Kaikomako* | ✓ | | ✓ | ✓ | ✓ |
| *Pseudopanex Arboreus* | *Five Finger* | ✓ | ✓ | ✓ | × | ✓ |

| Tolerates | | Sun | Wet | Dry | Wind | Shade |
|---|---|---|---|---|---|---|
| **Streamside in the flood channels/margin and stream edge** | | | | | | |
| *Carex Secta* | *Pukio* | ✓ | ✓ | × | ✓ | ***part*** |
| *Cortaderia Richardii* | *Toetoe* | ✓ | ✓ | ✓ | ✓ | × |
| *Hoheria Angustifolia* | *Horoeka, Lacebark* | ✓ | ***part*** | ✓ | ✓ | × |
| *Plagianthus Regius* | *Manatu, Lowland Ribbonwood* | ✓ | ***part*** | ✓ | ✓ | × |
| **Lower Bank** | | | | | | |
| *Cordyline Australis* | *Ti Kouka, Cabbage Tree* | ✓ | ✓ | ✓ | ✓ | × |
| *Griselinia lucida* | *Puka, Broadleaf* | ✓ | × | ✓ | ✓ | ***part*** |
| *Kunzea Ericoidies* | *Kanuka* | ✓ | × | ✓ | ✓ | × |
| *Pittosporum Eugenoidies* | *Tarata, Lemonwood* | ✓ | ***part*** | ✓ | × | ***part*** |
| *Pittosporum Tennuifolium* | *Kohuhu, Black Matipo* | ✓ | × | ✓ | ✓ | ***part*** |
| *Pseudopanax Arboreus* | *Whauwhaupaku, Five Finger* | ***part*** | ***part*** | ***part*** | × | ***part*** |
| *Coprosma Propinqua* | *Mingimingi* | ✓ | ✓ | ✓ | ✓ | × |
| *Coprosma Robusta* | *Karamu* | ✓ | ***part*** | ✓ | ✓ | ***part*** |
| *Phormium Tenax* | *Harakeke, Swamp Flax* | ✓ | ✓ | ***part*** | ✓ | × |
| **Upper Bank to be planted once some cover has been established** | | | | | | |
| ***Include elements of the lower terrace plus the trees below*** | | | | | | |
| *Beilschmiedia Tawa* | *Tawa* | × | ***part*** | × | × | ✓ |
| *Elaeocarpus Dentatus* | *Hinau* | × | ***part*** | × | × | ✓ |
| *Laurelia Novae-Zelandiae* | *Pukatea* | ***part*** | ***part*** | × | × | ✓ |
| *Nestegis Cunninghamii* | *Black Maire* | ✓ | ***part*** | × | × | × |
| *Lophozonia Menziesii* | *Silver Beech* | × | ***part*** | × | ✓ | ✓ |
| *Fuscospora Solandri* | *Black Beech* | × | ***part*** | × | ✓ | ✓ |
| *Podocarpus Totara* | *Totara* | ✓ | ***part*** | ✓ | ✓ | ✓ |
| *Prumnopitys Ferruginea* | *Miro* | × | ***part*** | × | ✓ | ✓ |
| *Prumnopitys Taxifolia* | *Matai* | × | ***part*** | × | ✓ | ✓ |

## Interesting Maitai species

Opportunity can be taken, no matter how big or small your land area is, to grow some of the interesting species that are now uncommon in the Maitai Valley. By growing these we are contributing to the conservation of these species as well as educating others of their importance.

Nikau have largely disappeared from the valley but need to be re-established in the valley and adjoining gullies.



*Nikau*

*Pukatea*

Plants such as Nikau, Pukatea and Griselinia are often thought to be too frost tender for the valley but were once present and can again be re established with careful siting.

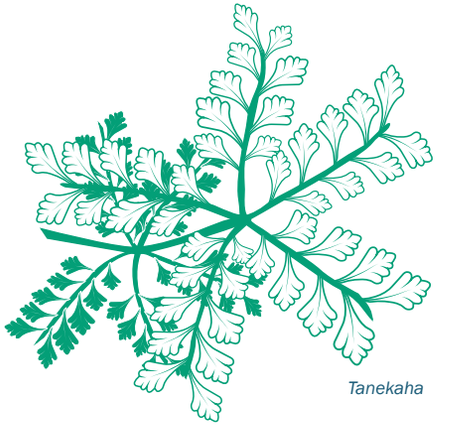
Species such as the Southern Rata are now less common in the Nelson area with some nice specimens still found up around the dam and upper valley area. These make a beautiful show of flowers in the summer and are a worthwhile inclusion in any planting.

*Rata*

Coprosma rotundifolia is a beautiful small shrub that forms nice groves of very attractive plants in damp and shady gullies. This species is well worth considering for those aspects.

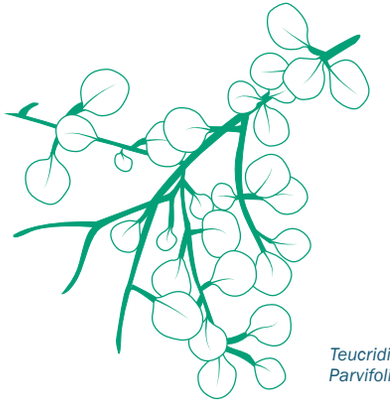
*Coprosma Rotundifolia*

Tanekaha or Celery Pine is a tree that was once common through the Maitai. Today it is found as far down as the camp and appears to be in decline. This is a species with a fascinating story and will do well in any planting in the Maitai.



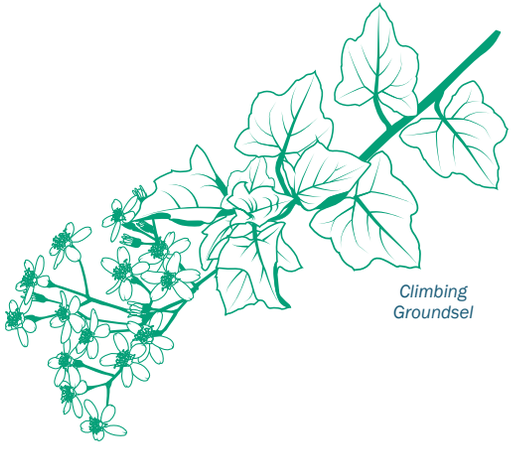
*Tanekaha*

Teucridium parvifolium is a great shrub that is endangered throughout New Zealand. It grows readily but is vulnerable to being grazed off by animals hence its scarcity. Its preference is for the margins of forest making it an ideal candidate for small restoration plantings.



*Teucridium Parvifolium*

An ideal companion for this plant is the Climbing Groundsel, another edge plant, quite threatened but an ideal plant to get back into the valley.

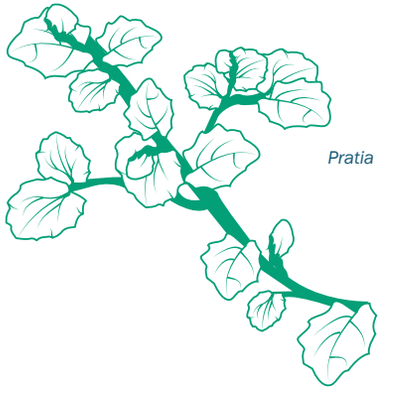


*Climbing Groundsel*

NZ Clematis is another great climbing plant. Whilst not being threatened it is becoming increasingly uncommon due to browsing and disturbance of forest lands.

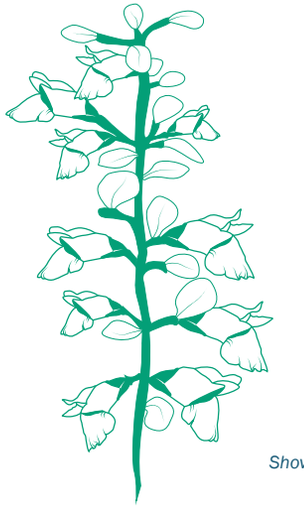
*NZ Clematis*

Damp stream edges provide the opportunity to plant Pratia, a very attractive and interesting groundcover. This is relatively easy to establish but has suffered as habitats have been damaged and modified.



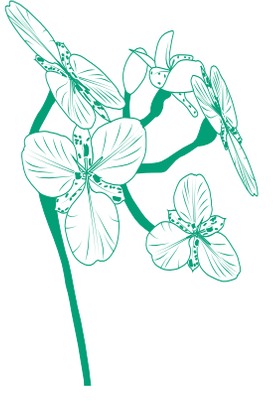
*Pratia*

Shovelmint is another low stature groundcover that has become increasingly threatened. This plant requires a dappled shade from small leaved plants rather than deep shade from broad leafed plants such as Mahoe.



*Shovelmint*

Also, in the shade of a forest environment the NZ Iris can be planted. Although not uncommon it is a very attractive species and a worthwhile inclusion to small and specialist plantings.



*NZ Iris*

## Further Resources

One of the best sources of information about your project may well be right next door – find other people living in your vicinity who have experience in restoration projects as these people are invaluable sources of information about what plants do well and which ones have not.  In most cases, people are very happy to share their knowledge, and will proudly show you around their site and help you make plans for yours.

There are a range of resources available through the Council, Department of Conservation, https://www.weedbusters.org.nz/, and at your local library.

The “Living Heritage – Growing native plants in Nelson” is a guide created by DOC and NCC that provides a broad list of native plants that are suitable for the wider Nelson area and is an essential resource.

Project Mahitahi

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