

Planting natives at Twizel and Lake Ohau

Introduction

The planting guide provides information for property owners in Twizel and at Lake Ohau who want to plant natives in their gardens that reflect the natural local environment.

Native plants currently or previously found in Twizel and Lake Ohau will have adapted to the local soil and climatic conditions. There will be different niches for different plants, such as a damper hollow, the south side of a ridge that is protected from the predominant NW wind and dry open flat land for example. Different native plants will naturally grow better if planted in the type of habitat that suits them. The addition of fertiliser and water will help almost all native plants to thrive as will the reduction of competition from other plants and weeds.



Pukaki Scientific Reserve

General information about planting natives

Preparation of a site for planting

If you are establishing a new garden for plants – dig over the site to remove grass cover/weeds, add compost/fertiliser such as blood and bone and ensure the soil is moist but not saturated.

For individual plants – clear an area around the planting spot of about 600mm to 1m diameter depending on the size of the plant. Dig holes that are 2x width and depth of the rootball. Loosen the sides and bottom of the hole and remove large stones. Keep dirt excavated from the hole for backfill.

Mark out where the plants are to be planted with a spacing between larger trees of 2.5 to 3m and between smaller trees, shrubs and herbs of 1.5 to 2m.

Planting

Ensure the plants rootball is moist before planting. If the plant looks dry, immerse it in a bucket of water until all air bubbles are gone. Lift out and allow to drain before planting.

Place the plant in a hole so that the base of the stem in the pot will be below the soil level by 20-30mm. This will leave a small depression around the top of the planting to capture water. Tease out the roots in the rootball, if necessary, and spread the roots out in the hole.

Place backfill in the hole, firming with fingers. Consolidate but do not compact the backfill.

Blood and bone can be mixed with the backfill at the time of planting. Slow release fertiliser tablets can also be added to the hole below the roots at planting time. Check the product's recommended number of tablets based on the size of the plant.

Some native plants, such as beech trees and manuka have a mutually beneficial relationship with a group of fungi known as mycorrhizae. Seedlings of these plants purchased from a nursery will have been infected with the mycorrhizae during propagation.

Water the plant well after planting.

Mulch

Many native plants grow in forests or shrublands that have a deep litter mulch of decaying vegetation, leaves etc. Mulch will help protect the roots of the plants, conserve moisture and keep weeds down.

Stones are an effective mulch (particularly if they are readily available on a stony site!). Stones to a depth of 100mm or so and over an area of 1m is ideal.

Wet newspapers, cardboard, old wool carpet, or weed mats can also be used and covered with wet straw, bark chips (untreated) or compost (90 to 120mm depth).



Scree slope native vegetation

Watering

All watering should be done thoroughly or deeply rather than often. Depending on the plant and the conditions, new plants may need deep watering 1-2 times a week for the first few weeks after planting so they can establish well. Water in the early morning. If a good mulch has been applied at planting, the amount of watering may be less and once the plants are established may only be needed once a week if dry hot conditions occur.

After care

Keeping weeds down and replenishing mulch so that a good layer of mulch remains in place will help the plants to grow. Fertiliser should be applied at least once a year for the first 3 years for each plant. Apply slow release fertiliser in moister late spring conditions or late summer/early autumn just before rain is due.

Wind protection

For exposed sites, plants may need protection from the north westerly wind. This can be achieved in a variety of ways such as attaching wind cloth to the wire plant protector, erecting a wind fence around a garden area or providing shelter through straw bales or other wind barriers. You can also plant a

formed shelter belt of exotic trees (that are not pest trees) to create shelter for your natives. Try to include at least three or more different species so that if a tree gets diseased then you do not lose your whole shelter belt. Good trees for this purpose include: leylandii, hornbeam, frost hardy gums.

Rabbit browse protection

Most new plants are an attractive food source to rabbits/hares so plants will grow and establish quicker if protected from browsing. A wire mesh protector for each plant can be used or larger sites can be protected by a perimeter rabbit proof fence. Rabbit repellent can be used but it needs to be re-applied regularly (it has not proved effective at Lake Ohau).

A wire mesh protector should be a minimum of 600mm high and of sufficient diameter to easily contain the plant plus new growth. 900mm wide mesh allows for a 600mm height plus a flange to hold down with rocks or metal pins. Cable ties or wire can be used for tying the mesh together.

Planting to reduce fire risk

With the dry environments at Twizel and Lake Ohau, try to keep a buffer around your house free of plants or plant less flammable species. This will help to create a defensible space around your house that allow heat and embers to dissipate if there is a fire. You can find out more information about the flammability of native plant species in this brochure prepared by NZ Fire Service - www.wrfd.org.nz/sites/default/files/Lowflamablespeciesbrochure.pdf



Broadleaf (*Griselinia littoralis*) and Hebe (*Veronica sp*)

Native plants in general

Native plants like to be planted close to each other. You will need to allow space for potential growth, but they will grow better when they can use other plants for shelter. Try mass plantings of the same species, these can look good and mimic what occurs naturally in the wild.

Be prepared to suffer plant losses. This is normal in such a harsh environment as the Mackenzie basin. Sometimes the plant selection is wrong, the plant is not put in the right place or maybe the plant has been pampered too much in the nursery beforehand!

Once your native plants have matured they could potentially provide you with 'offspring' – young plants – that can then be spread around your garden. Plants for free, that's certainly a bonus!

Grasses are very tough and can easily be divided in half or thirds before planting to get value for money when you buy a plant. Make sure you soak them well first, and do not divide your plants into very tiny pieces or they may die.

For general planting, think about....

Eco-sourced plants

Some nurseries supply native plants grown from seeds collected from plants found in the Twizel and Lake Ohau natural environments – these are called eco-sourced plants. It means the plants will be suited to local conditions and more likely to survive. By using eco-sourced native plants you will also help maintain the area's unique local characteristics. Eco-sourcing will avoid the risk of planting species which are not native to the local area and which could become invasive.

You can collect seeds locally yourself and grow the native plants – check online for information about native plant propagation including on the DOC website at <http://www.doc.govt.nz/get-involved/run-a-project/restoration-advice/native-plant-restoration/ecosource-seeds/> You do need a permit from DOC to collect seeds from plants growing on public conservation land.

It may not be possible to find a native you want to plant that has been grown from eco-sourced seeds. Talk to the nursery about options and what plants they have available. Some nurseries may grow up some eco-sourced plants if there is sufficient demand.

What to look for when buying plants

Try to buy plants from retailers who leave their plants out in the open and not under nursery canopies. This toughens the plants up more. It is often worth checking out the bargain bin because those plants that have been left to dry may look terrible but they can often cope well with dry Twizel/Lake Ohau conditions!



Berries on *Coprosma rugosa*

Plants to attract native birds

Plants with larger flowers and berries can provide a good food source to native birds such as bellbirds. Suitable plants include Kowhai, Hall's Totara, Coprosma species, Mountain Wineberry, Porcupine Shrub (also good for skinks and geckos), Weeping Mapou, flax and Broadleaf.

Providing lizard habitat

As land becomes developed for residential use our native wildlife gets displaced. This is especially so for skinks and geckos. An option is to create a grass and stone area that has native plants established such as *Coprosma propinqua*, *Muehlenbeckia* and Porcupine Shrub which will provide berries for food. Onduline tiles makes good shelter for lizards and will protect them from hungry predators, especially cats.

For planting at Twizel, think about.....

Chlorinated water in Twizel

There is chlorine in the Twizel water supply. Chlorine can kill beneficial microorganisms in soil, thereby affecting plant growth; however, most chlorinated drinking water is not concentrated enough to adversely affect plant life. If you are concerned you could collect rain water for your plants from your house or shed runoff. Another alternative is to fill a large container with tap water, leave it to sit for 24 hours and then it will be chlorine free.

Watering your plants

The soil in Twizel can be extremely dry, particularly if planting in autumn months. A slow phasing off watering technique can work well. This is where you put your plant in the ground and water every day for the first week. Then every second day for the second week. You don't need to water on days where it is raining already. Gradually phase your plant out until you are watering just once a week and then you have 'hardened' it off to cope with dry spells in future. You may need to adapt your watering programme by checking what the plant 'tells' you – you will notice if it cannot cope with less water as leaves will droop, or they may look yellow etc.

Time of planting

Trees and plants grow well when planted in early autumn – March, April because they can put their energy into growing roots and not into growing new foliage. Plant roots need around six weeks to get established, so you need to try and time this before the colder temperatures arrive.

Spring is another good time to plant but it is better to wait until most of the hard frosts have finished – generally October. The Twizel region especially has hard frosts as the air is often still. This means plants do not get a lot of air movement like plantings around lake shores experience (Lake Pukaki, Lake Ohau) to keep hard frosts at bay. Cold air also sinks and Twizel township is one of the lowest areas in Mackenzie Basin making it especially cold in winter. This significantly affects plant choices as they must be able to handle the winter temperature extremes. Plants that can cope to minus 15 degrees are ideal. These same plants may succumb in a minus 22 degree frost (experienced in 2015), but they will come away again from the roots as long as they are not shallow rooted.

Improving the soil

In general the soil around Twizel area is alkaline. That is why exotic plants such as bearded irises do so well here. The soils are also very stony and nutrient deficient so the more compost you can add when you dig in a plant the better. In larger lifestyle blocks you may find 'channels' where river water once

flowed. These hollows become filled over time with windblown silt – this makes for much easier digging as they are generally stone free! Take the time to study your land and see where the natural hollows and wetter places are. This will become more obvious in late summer as certain areas dry out and other spots don't. Those naturally damper spots will be better places to plant natives such as Mountain Flax that really don't like drying out.



Shingle mulch for native plants

Suitable Native Species for Twizel

All the plants listed below are found naturally in the Mackenzie Basin. This list is a guide only, you will need to research plant sizes and site preferences to suit your garden requirements.

Key: FR= fire resistant, Birds= attracting birds, ST=shade tolerant

Trees

Mountain beech	<i>Fuscopora cliffortioides</i>	
Mountain ribbonwood	<i>Hoheria lyalli</i>	FR
Hall's totara	<i>Podocarpus laetus</i>	Birds

Shrubs – up to 5m tall

Mountain wineberry	<i>Aristotelia fruticosa</i>	Birds
	<i>Brachyglottis cassinioides</i>	
Coral broom	<i>Carmichaelia crassicaulis</i>	Good plant for the dry
Dwarf broom	<i>Carmichaelia nana</i>	Good plant for the dry
Desert broom	<i>Carmichaelia petriei</i>	Good plant for the dry
	<i>Coprosma intertexta</i>	Birds
Mingimingi	<i>Coprosma propinqua</i>	Birds
	<i>Coprosma rugosa</i>	Birds, FR, Tough coprosma

Matagouri	<i>Discaria toumatou</i>	
Porcupine shrub	<i>Melicactus alpinus</i>	<i>Very slow growing</i>
Weeping matipo	<i>Myrsine divaricata</i>	<i>Birds</i>
	<i>Olearia bullata</i>	<i>Birds</i>
	<i>Olearia nummulariifolia</i>	<i>Birds</i>
Scented tree daisy	<i>Olearia odorata</i>	<i>Birds</i>
	<i>Olearia virgata</i>	<i>Birds</i>
Mountain flax	<i>Phormium cookianum</i>	<i>Birds, Don't let dry out until mature</i>
Snow totara	<i>Podocarpus nivalis</i>	<i>Birds, Don't let dry out</i>
Hebe	<i>Veronica cupressoides</i>	<i>Easy to grow</i>



Te Manahuna/Twizel Department of Conservation native garden

Small shrubs/plants – up to 1 m tall

Alpine fern	<i>Blechnum penna-marina</i>	<i>Copes with dry sites</i>
	<i>Brachyglottis haastii</i>	<i>Dislikes exposed sites</i>
Dwarf broom	<i>Carmichaelia vexillata</i>	
Common mountain daisy	<i>Celmisia gracilentia</i>	
Rock fern	<i>Cheilanthes humilis</i>	
	<i>Coprosma cheesmanii</i>	<i>Birds</i>
	<i>Coprosma ciliata</i>	<i>Birds</i>
Dwarf mingimingi	<i>Leucopogon fraseri</i>	
Creeping pohuehue	<i>Muehlenbeckia axillaris</i>	
Cottonwood	<i>Ozothamnus leptophyllus</i>	<i>Easy to grow</i>
	<i>Pellaea calidirupium</i>	

Native daphnes	<i>Pimelea prostrata</i> , <i>Pimelea traversii</i>	
Veronicas (aka Hebes)	<i>Veronica buchananii</i>	
	<i>Veronica lycopodioides</i>	
	<i>Veronica salicifolia</i>	FR, Birds
	<i>Veronica subalpina</i>	
	<i>Veronica treadwellii</i>	Easy to grow but don't let dry out

Climbers

Wire vine	<i>Muehlenbeckia complexa</i>	
New Zealand jasmine	<i>Parsonsia capsularis</i>	

Tussocks, grasses, herbs and small plants

Golden speargrass	<i>Aciphylla aurea</i>	Don't overwater
	<i>Aciphylla subflabellata</i>	Don't overwater
Slim snow tussock	<i>Chionochloa macra</i>	Don't let dry out
Narrow-leaved snow tussock	<i>Chionochloa rigida</i>	Don't let dry out
Blue fescue	<i>Festuca matthewsii</i>	Easy to grow
Hard tussock	<i>Festuca novae-zelandiae</i>	Easy to grow
Scree poa	<i>Poa buchananii</i>	
Silver tussock	<i>Poa cita</i>	Easy to grow
Blue tussock	<i>Poa colensoi</i>	Easy to grow
	<i>Rytidosperma pumilum</i>	

Tiny plants**

Bidibid	<i>Acaena fissistipula</i>	
Glaucus bidibid	<i>Acaena caesiiglauca</i>	
	<i>Anisotome aromatica</i>	
	<i>Brachyglottis bellidioides</i>	
	<i>Callitriche petriei subsp petriei</i>	
	<i>Carex breviculmis</i>	
	<i>Chaerophyllum colensoi</i> var. <i>colensoi</i>	

	<i>Colobanthus acicularis</i>	
	<i>Colobanthus strictus</i>	
Tussock bindweed	<i>Convolvulus verecundus</i>	
	<i>Epilobium angustum</i>	
Dwarf bedstraw	<i>Galium perpusillum</i>	
Grass lily	<i>Herpolirion novae-zelandiae</i>	
	<i>Kelleria lyallii</i>	
	<i>Leptinella pectinata</i>	<i>Dry stony ground</i>
South Island Edelweiss	<i>Leucogenes grandiceps</i>	<i>Grows in rocky outcrops</i>
Mountain lobelia	<i>Lobelia linnaeoides (creeping herb)</i>	
	<i>Muehlenbeckia ephedroides</i>	
	<i>Phyllachne colensoi</i>	
Scree buttercup	<i>Ranunculus crithmifolius</i>	
Grassland buttercups	<i>Ranunculus gracilipes, Ranunculus multiscapus</i>	
	<i>Utricularia dichotoma</i>	
Mountain violet	<i>Viola cunninghamii</i>	

**Some of the less common plants listed may be purchased from specialised plant nurseries, or through Alpine Plant Societies Showdays.



Ahuriri tops – perfect natural landscaping

Mat/cushion plants

dwarf Broom	<i>Carmichaelia nana</i>	
	<i>Coprosma atropurpurea</i>	
	<i>Kelleria dieffenbachii</i>	
Pratia	<i>Lobelia angulata</i>	

	<i>Pentachondra pumila</i>	
Common mat daisy	<i>Raoulia australis</i>	
Fan-leaved mat daisy	<i>Raoulia monroi</i>	
Celadon mat daisy	<i>Raoulia parkii</i>	
Turf mat daisy	<i>Raoulia subsericea</i>	
	<i>Scleranthus uniflorus</i>	<i>Do not overwater</i>

Wetland plants

Cutty grass	<i>Carex coriacea</i>	<i>Will grow in well-drained soil</i>
	<i>Carex buchananii</i>	
	<i>Carex gaudichaudiana</i>	
Maori sedge	<i>Carex maorica</i>	
Purei	<i>Carex secta</i>	<i>Will grow in well drained soil</i>
	<i>Glossostigma elatinoides</i>	
Maniototo button daisy	<i>Leptinella maniototo</i>	
	<i>Limosella lineata</i>	
	<i>Potamogeton cheesemanii</i>	<i>Grows in ponds</i>



Lake Tekapo township native plantings

For planting at Lake Ohau, think about.....

Timing of planting

Best in the autumn months of April to May because they can put their energy into growing roots and not into growing new foliage. Possible to plant in late winter and early spring (August to September) but intensive watering may be required to keep the plants alive over the following dry summer.

Improving the soil

There are generally stony and clay soils around the Village (with patches of better soil) that will benefit from the addition of compost, blood and bone or other well-rotted organic material before planting. Fertilisers can also be added such as slow release fertiliser tablets.



Dry environment planting at Lake Ohau

Suitable Native Species for Lake Ohau

All the plants listed below are found naturally around the western side of Lake Ohau. This list is a guide only, you will need to research plant sizes and site preferences to suit your garden requirements.

Key: FR= fire resistant, Birds= attracting birds, ST=shade tolerant

Trees

Mountain and Black Beech	<i>Fuscospora cliffortioides</i> and <i>Fuscospora solandri</i>	
Broadleaf	<i>Griselinia littoralis</i>	FR, ST, plant in a sheltered spot
Mountain Ribbonwood	<i>Hoheria lyallii</i>	FR, deciduous
Celery Pine	<i>Phyllocladus alpinus</i>	
Kohuhu	<i>Pittosporum tenuifolium</i>	May suffer in extreme cold (-15°C)
Hall's Totara	<i>Podocarpus laetus</i>	Birds
Fierce Lancewood	<i>Pseudopanax ferox</i>	FR
South Island Kowhai	<i>Sophora microphylla</i> (Ohau variety)	Birds

Shrubs – up to 5m tall

Mountain Wineberry	<i>Aristotelia fruticosa</i>	Birds
Mountain heath	<i>Acrothamnus colensoi</i>	
Native Broom	<i>Carmichaelia petriei</i>	Good plant for the dry
Coprosma species	<i>Coprosma intertexta</i>	Birds
Mingimingi	<i>Coprosma propinqua</i>	Birds, ST
	<i>Coprosma rugosa</i>	FR, Birds, ST
	<i>Coprosma dumosa</i>	Birds
Korokio	<i>Corokia cotoneaster</i>	Birds
Matagouri	<i>Discaria toumatou</i>	
Inaka	<i>Dracophyllum longifolium</i>	Can be tricky to grow
Turpentine Bush	<i>Dracophyllum uniflorum</i>	Can be tricky to grow
Bush snowberry	<i>Gaultheria antipoda</i>	
	<i>Gaultheria crassa</i>	
Snowberry	<i>Gaultheria depressa var novae-zelandiae</i>	
Manuka	<i>Leptospermum scoparium</i>	
Porcupine Shrub	<i>Melicytus alpinus</i>	Very slow growing
Weeping Mapou	<i>Myrsine divaricata</i>	Birds, ST
Mountain akeake	<i>Olearia avicenniifolia</i>	Birds
Bush Daisy	<i>Olearia bullata</i>	Birds
Shrub Daisy	<i>Olearia nummulariifolia</i>	Birds
Scented tree daisy	<i>Olearia odorata</i>	Birds
Mountain flax	<i>Phormium cookianum</i>	Don't let dry out until mature, Birds
Flax	<i>Phormium tenax</i>	
Pittosporum	<i>Pittosporum patulum</i>	
Snow Totara	<i>Podocarpus nivalis</i>	Don't let dry out
Hebe	<i>Veronica cupressoides</i>	Easy to grow

Small shrubs up to 1m

	<i>Brachyglottis haastii</i>	<i>Dislikes exposed sites</i>
Dwarf mingimingi	<i>Leucopogon fraseri</i>	
Creeping pohuehue	<i>Muehlenbeckia axillaris</i>	
Cottonwood	<i>Ozothamnus leptophyllus</i>	<i>Easy to grow</i>
Native Daphne	<i>Primelea traversii</i>	
Veronica (aka Hebe) species	<i>Veronica pauciramosa</i>	
Koromiko	<i>Veronica salicifolia</i>	<i>FR, Birds</i>
	<i>Veronica subalpina</i>	



Mingimingi (*Coprosma propinqua*) and hebe (*Veronica sp.*) at Lake Ohau

Climbers

Wire vine	<i>Muehlenbeckia complexa</i>	
Bush lawyer/tataramoa	<i>Rubus schmidelioioides</i>	

Tussocks, grasses, ferns, herbs and small plants

Glaucus bidibid	<i>Aceana caesiiglauca</i>	
Golden Spaniard	<i>Aciphylla aurea</i>	<i>Don't overwater</i>
Blue wheatgrass	<i>Anthosachne solandri</i>	
Butterfly fern	<i>Asplenium flabellifolium</i>	
Toetoe	<i>Austroderia richardii</i>	
Alpine fern	<i>Blechnum penna-marina</i>	
Sedge	<i>Carex virgata</i>	
Large snow tussock	<i>Chionochloa flavescens</i>	
Narrow-leaved snow tussock	<i>Chionochloa rigida</i>	<i>Don't let dry out</i>
Red tussock	<i>Chionochloa rubra</i>	
Fescue/Hard tussock	<i>Festuca novae-zelandiae</i>	<i>Easy to grow</i>

Pennywort	<i>Hydrocotyle novae-zeelandiae</i> var. <i>montana</i>	
Red woodrush	<i>Luzula rufa</i>	
Silver tussock	<i>Poa cita</i>	<i>Easy to grow</i>
Blue tussock	<i>Poa colensoi</i>	<i>Easy to grow</i>
Prickly shield fern	<i>Polysticum vestitum</i>	
Bracken	<i>Pteridium esculentum</i>	
Common mat daisy	<i>Raoulia australis</i>	<i>Mat plant</i>



Tussock and toetoe border at Lake Ohau

Other suitable native plants

These plants are not found naturally in the wild but should grow well in gardens here.

Key: FR= fire resistant, Birds= attracting birds, ST=shade tolerant

Trees and shrubs over 1m

	<i>Olearia lineata</i>	Birds
Akiraho, golden akeake	<i>Olearia paniculata</i>	Birds
Ribbonwood	<i>Plagianthus regius</i>	Birds

Shrubs/grasses under 1m

Hells Bells	<i>Anaphaloides belliodoides</i>	
Gossamer grass	<i>Anamanthele lessoniana</i>	Easy to grow and copes with dry
Chatham Island astelia or kakaha, Moriori flax	<i>Astelia chathamica</i> cv Silver Spear	ST
Sedge	<i>Carex comans</i>	
Sand coprosma	<i>Coprosma acerosa</i>	Birds
Banks Peninsula Fescue	<i>Festuca actae</i>	
New Zealand iris	<i>Libertia ixioides</i>	
Shrubby tororara	<i>Muehlenbeckia astonii</i>	
Marlborough rock daisy	<i>Pachystegia insignis</i>	
Scabweed, scabweed mat daisy	<i>Raoulia hookerii</i>	
Armstrongs Whipcord Hebe	<i>Veronica armstrongii</i>	
Veronicas (aka Hebes)	<i>Veronica decumbens</i>	Easy to grow and handles dry
	<i>Veronica pinguifolia</i>	
	<i>Veronica topiaria</i>	

Note: This document provides a guide to planting natives but it is not definitive and there are other native plant species that are found in the Mackenzie Basin that you can grow in your garden. A good resource to identify native plants is at NZ Flora - <http://www.nzflora.info/index.html>

This planting guide has been prepared by The Ohau Conservation Trust. The Trust wishes to thank the staff of the Department of Conservation Te Manahuna/Twizel Office for their contributions of enthusiasm for the project and knowledge and expertise about native plants.

To find out more about the Ohau Conservation Trust visit www.ohau.org.nz