

Restoring Native Vegetation on South Marlborough Low Lying Hill Slopes

Marlborough District Council – Tui to Town Project – June 2008

A number of property owners have expressed an interest in restoring native vegetation on the low lying hill slopes in and around the Wairau and Awatere Plain areas. Originally, a mosaic of forest types would have been present on these hills. In some cases the hill slopes retain some scattered native vegetation – while others are completely bare and are sometimes scarred by erosion.

The local soils and climate combine to make these hill slopes a harsh environment in which to establish plants. However there are some native plant species adapted to surviving in the tough conditions of south Marlborough, and a number of species are worth trying to establish. Observing where there are plants already surviving should give some clues as to what might do well. Plant growth rates will be relatively slow compared to less exposed, more fertile sites on the plains.

On dry sunny north facing slopes characteristic Marlborough dryland “grey scrub” plants will be the main vegetation able to be re-established. On cooler south facing slopes and in moister gullies a greener broadleaved forest can be established over time.



Species on this dry north facing slope include some typical dryland “grey scrub” species”, prostrate kowhai, silver tussock, Muehlenbeckia astonii and porcupine shrub (*Melicytus Waipapa*).



Moister gullies will support species such as mahoe, five finger, kohuhu, akiraho, tree hebe, while kanuka and “grey scrub” species persist on the dryer exposed slopes.

Suitable Species

The species that have survived on these hill slopes and which offer the best options for re-establishment include:-

kanuka (*Kunzea ericoides*),
matagouri (*Discaria toumatou*),
shrubby totoraro (*Muehlenbeckia astonii*),
wiggy wig (*Muehlenbeckia complexa*),
Muehlenbeckia australis,
tauhinu (*Ozothamnus leptophyllus*),
silver tussock (*Poa cita*),
porcupine shrub (*Melicytus Waipapa*),

Prostrate kowhai (*Sophora prostrata*),
Coastal shrub daisy (*Olearia solandri*),
akiraho (*Olearia paniculata*) and
Coprosma species (*C. propinqua*, *C. rhamnoides*, *C. crassifolia*, *C. robusta*).
Ngaio (*Myoporum laetum*), is suitable for frost free coastal sites.

For eroded areas focus on a few especially tough species – tauhinu, *M. complexa* and *C. propinqua*.

Once regeneration is well underway, and also in the moister more sheltered gully areas, a more diverse set of species can be established including: -

Cabbage trees (*Cordyline australis*),
kowhai (*Sophora microphylla*),
flax (*Phormium tenax*),
mahoe (*Melicytus ramiflorus*),
kohuhu (*Pittosporum tenuifolium*),
five finger (*Pseudopanax arboreus*),

tree hebe (*Hebe parviflora*),
manuka (*Leptospermum scoparium*)
totara (*Podocarpus totara*),
matai (*Prumnopitys taxifolia*) and
black beech (*Nothofagus solandri*).

Methods/Techniques

Because plants planted on dry hill slopes will generally be left to fend for themselves without water, maximising their chance of survival is important. Be prepared for some losses.

Study your site carefully and look for any microhabitats that will influence your species selection (ie aspect - which direction does the slope face, frost hollows and differences between the top and bottom of slopes, any moister areas, rocky places or sheltered gullies.)

Site preparation – deep cultivation prior to planting is best, either mechanically using a winged ripper pulled behind a 4WD tractor or on the head of an excavator, or by hand using a spade and grubber. This assists water percolation and root spread as these soils are often compacted. To reduce competition remove weeds and grass over an area of 1 square metre prior to planting, either by spraying 6 weeks before planting (The product TAG is useful as it is longer lasting, otherwise glyphosate (Roundup)), or by removing surface grass and vegetation by hand with a sharp spade or grubber.

Use locally sourced plants that have been “hardened off”, ie; don’t take them straight from a sheltered position in the nursery and plant them straight out onto an exposed hillside.

Time planting for the wettest part of the autumn to spring season, and also to avoid the worst of the hard frosts. Plant when there has been some rain so that soil is moist and before rain is forecast if possible. If the site is very exposed to the wind consider establishing shelter species first (eg; tree lucerne or a flax wind-break), or time to avoid the worst of the winds if possible. On the coast this may be in autumn, in other areas it may be late winter/early spring.

Planting - create a small hollow around the base of the plant to capture moisture, particularly on slopes. Make sure the root collar of the plant is below the soil surface to avoid it drying out. **If possible** - use 30-60 grams (a small handful) of slow release fertiliser mixed in with the soil when planting and placed around the root ball - half a cup of gypsum spread on the soil surface around the plants and covered with a layer of mulch will provide further benefits. The “Crystal Rain” product might be helpful initially but adds to the cost.

Mulching - Avoid mulches that might block light rain from reaching the soil surface (commercial plastic covers and carpet squares), use permeable materials like, straw, newspaper, compost bark etc.

Tree protectors can be used to provide extra shelter for the first year or so and they can also help protect against rabbit browse.

Rabbit/hare control - If rabbit or hare numbers are high they need to be reduced through shooting or poisoning prior to planting. Some commercial rabbit deterrents are available. Rabbits seem to favour some plants over others (kowhai is one) and tree protectors at least around these species are recommended.

Ongoing grass and weed control is essential in the first few years to maximise the chance of plant survival. If spraying is to be used be aware that native plants are very susceptible to herbicide so careful low pressure spraying with glyphosate (Roundup) is recommended. Hand weeding or careful weed eating (use a guard) are the alternatives. A weed eater is only recommended if the operator is skilled and the plants are well marked - tall bamboo stakes are recommended for marking the position of each plant. These can be colour coded to record which year plants were established which can be useful for larger plantings. Avoid releasing plants in hot windy conditions so that plants are not suddenly exposed to the wind and drying out.

If irrigation or watering is possible do this in the dry periods of spring and summer when growth rates are higher. Plants will benefit from occasional and thorough watering which will encourage deep rooting, rather than frequent light watering.