

LAND MANAGEMENT

NATIVE TREES

Enhancing Indigenous Vegetation in Protected Areas

Why protect indigenous vegetation?

Fencing areas of native bush and protecting them legally with covenants will prevent further degradation of the vegetation. Excluding domestic stock and controlling plant and animal pests will normally lead to significant regeneration and growth of native seedlings.



This bush area near Kereru is both physically and legally protected with the QE11 National Trust, enabling the bush to recover and the owners to be sure it will continue to be protected in the future.

Where bush is severely depleted, or to speed up recovery, some way of enhancing the existing vegetation may be required. Natural regeneration could be assisted, direct seeding could be used, or revegetation and restoration planting carried out.

Assisting natural regeneration

Fencing to exclude domestic stock and controlling animal and plant pests will go a long way to promoting regeneration,

particularly if the species present in the existing stand are good sources of viable seed. Once the area is retired by fencing, prolific germination often occurs in the bare ground under existing tree cover, but extra measures may have to be taken around the edges of these blocks where rank grass and weeds grow without stock pressure.

These margins are important buffer zones. Establishing a good cover of colonising native species will reduce weed problems and improve the microclimate within the block by acting as a windbreak.

Control the rank growth with scrubcutters or chemicals. Continuing weed control, including mulching, will help the resulting seedlings. On some bare or exposed sites a

nurse crop will help protect native seedlings. Commonly used species, including kanuka, manuka or tree lucerne would be most suitable, with tree lucerne perhaps the preferred species.

While tree lucerne is not indigenous, it tolerates a wide range of sites, is fast growing but relatively short lived, and native birds such as pigeons, tuis and bellbirds are variously attracted by the flowers, shoots and foliage of the plants. Attracting birds to these areas is important, as they are effective in dispersing the seeds of many native plant species.



Native seedlings planted within a retired area to speed up regeneration.

Sourcing Material

In poorer stands it may be necessary to resort to direct seeding or plantings to speed revegetation. In this case, consider preserving the genetic purity of the existing vegetation by eco-sourcing planting material.

This involves collecting seed or cuttings from vegetation native to the surrounding district, which is either present or known to have been present in the area to be planted. Material to be propagated should be collected from the same stand if possible, from the same catchment, or from an area within three to five kilometres of the planting site. (Note a permit is required to collect material from a reserve – check with the Department of Conservation).

Genetic purity

There are a number of reasons for preserving genetic purity, and it is prudent to use locally sourced material. Unique populations, or provenances, of New Zealand native plant species have developed over hundreds of years, and the same species from different localities can

display distinct, and differing characteristics, such as flowering time, seed set, growth rate, leaf form, growth habit and environmental tolerance.

Introductions of non-local species, subspecies, race, or variety may interbreed with local populations giving rise to fertile offspring capable of interbreeding and, over time, introducing new genetic material into the local population. This new material may eventually suppress the local characteristics and could lead to the elimination of one or more previously distinct growth forms. This will complicate any study of the evolutionary history of the native flora, which is not well known or documented.

Genetic pollution can also lead to the loss of genetic diversity, thereby reducing a population's ability to respond to selection pressure and possibly, in the long term, threatening the survival of some species. For example, *Dodonea viscosa* grown from Northland seed would not survive heavy frosts of the lower North Island, while the same species grown from Taupo seed would struggle in the salt-laden winds of the Northland coast.

Record keeping

Careful attention to the sourcing of planting material should avoid most problems, but it is still a good idea to keep permanent records. These should include the location of planting, the species and numbers planted, and the provenance of the seed or seedlings, the size and condition of plants, site preparation undertaken, planting dates and methods, any treatments, such as fertilisers or mulching, weather conditions, follow up treatments, such as weed and pest control, and an assessment of survival rates.

Complete records will allow the success of the project to be analysed, confirm successful methods, and help avoid pitfalls in future plantings.

Direct Seeding

This can be an effective method of revegetating areas, particularly forest margins. Success depends on sufficient quantities of viable seed, availability of labour, a good seed bed and ongoing

control of weeds and pests. One method involves laying branches of seed-bearing kanuka or manuka onto an area of bare soil and leaving it to regenerate.

Planting

This is the most reliable regenerative method. Plants are available from:

- existing forest areas (see comments above about designated reserves)
- commercial nurseries or your own nursery.

Wild seedlings can be collected from the forest floor of other retired stands in the area. These plants should normally be 12 to 15 cm tall. Greater success can be achieved if it is possible to encourage a fibrous root system to develop on the plants by root pruning six to eight weeks before lifting. This involves cutting around the plant with a sharp spade while the roots are actively growing.

Plants are normally lifted and transplanted in winter or early spring. To keep roots moist, try to retain as much soil as possible. For storage and transport it is a good idea to wrap the roots of the plants in damp newspaper, or put them into damp moss.

Some root pruning and shaping may be necessary which encourages the development of fibrous rooting. Removal of some vegetative parts of the plant to reduce moisture loss is also wise.

These plants can be established directly into the wild, but greater success will be achieved if they are grown in a nursery or shadehouse for a year or so. This enables better root systems to develop and the plants to become hardened off.

Shade house Propagation

An alternative to collecting and planting out existing seedlings is to collect seed or cuttings for propagation. Grow these in shade houses until they are suitable in size and condition for planting out. Harden off plants before planting by taking them out of the shade house and keeping them in the open for several weeks.

References

Native Forest Restoration, Tim Porteous, QEII National Trust.

New Zealand Native Plants Course, TOPNZ (The Open Polytech of NZ)

Plant Materials Handbook for Soil Conservation Vol 3, Native Plants, NWASCO 1986.

For further information

For further information on native trees, ask for the other titles in this series or contact Land Management Officers at the Hawke's Bay Regional Council for advice:

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