



## NEW ZEALAND MEDICINAL PLANTS



Makomako (wineberry) *Aristolelia serrata*.  
Photo M. Bergin



Koromiko, *Veronica stricta*, formally (*Hebe stricta*).  
Photo M. Bergin



Kawakawa, *Piper excelsum* subsp. *excelsum*.  
Photo M. Bergin

Some native medicinal plants are valued not just for human health, but for stock as well. The use of harakeke – New Zealand flax – for drenching cattle, for instance, is well known and much used. However the focus here is the place that the plants, used traditionally by Maori for medicine, have in the forest, and how they benefit the establishment of New Zealand native forestry species.

The first point to note is that the primary role of most of these species is to heal the land. They are characteristic of regenerating bush and are most prominent in the landscape where there has been major disturbance; a fire, slip, logging etc. They quickly regenerate in open areas and establish initial cover, acting as a nursery to sustain re-establishment of more durable forest species. Manuka and kanuka, so much the focus of investment at the present time, are good examples of this, but many other species contribute to forest recovery in a similar way; karamu and other coprosmas, koromiko, matipo, poroporo, makomako (wineberry), houhere and many more as listed in the Tāne's Tree Trust *Technical Handbook*.

Tutu/tupakihi is particularly worth noting, even though it is considered to be unwelcome because the foliage can be very poisonous to stock, and the honey dew, collected by bees towards the end of summer, is also toxic. Tutu thrives in the most inhospitable of landscapes; Mount Tarawera after the 1886 eruption is a good example. It is a nitrogen fixer and semi-deciduous. It helps to rebuild sufficient nutrients in the soil to allow other species to successfully establish.

A second point to note is that medicinal plants are more commonly found in the regenerating edge of a forest. This is usually a dense fringe made up of a range of species which collectively shield the inner forest from the drying effects of wind. This edge forest is a major source of food for birds. They too play a key role in the establishment of a healthy forest ecosystem.

There are some subcanopy species which are important; for example, Kanono/manono/raurekau (*Coprosma grandifolia*) and kawakawa (*Macropiper excelsum*) - although for medicinal purposes it is better to harvest from plants which are exposed to sun for at least part of the day, particularly in the morning. These species, along with the seedlings, ferns, mosses etc. which populate the forest floor, play a major role in maintaining the health of the forest, and particularly the major trees that are used for timber.

A major characteristic of the New Zealand forest is that it is species rich; it usually contains a diverse range of species that collectively ensure that it thrives. To establish a healthy forest it is important to set out to re-establish the whole forest community and not just those species that, in the long term, may produce harvestable timber. In times past this would happen of its own accord; in most places there was a rich and varied seed source and a healthy bird population to help to distribute seed. That is rarely the case today; the birds are largely gone and the landscape is dominated by exotic, and often weed, species which will quickly fill any open areas. Planning needs to include not just the timber species, but the secondary species that act as nurse plants, to ensure successful forest establishment. This will also ensure that the variety of species still used as medicines will be available for traditional healers.

Here are few suggestions to help successfully establish a forestry block:

1. Surround the planting area with a multi species fringe of trees to shield and protect the new forest. Select a mix of locally sourced species typical of your local area. Many of these can be useful as medicines.
2. Interplant timber trees with secondary species. These revegetation type species are much cheaper to produce, so there is a cost saving. They act as nursery plants, both protecting the trees and forcing them to grow upwards.
3. Make sure to control browsing animals. Most native trees, particularly those initial revegetation species, are very palatable.

# THE IMPACT OF ANIMAL PESTS ON FOREST SUSTAINABILITY

By Mark Smale

Anyone who has visited pest-free offshore island sanctuaries like Little Barrier, Kapiti, or Ulva cannot help but notice their highly conspicuous birdlife. At times it is literally 'in your face'. Fenced pest-free 'mainland islands' like long-established Zealandia and more recent larger ones like Maungatautari are now providing the same experience for a much larger number of people. But they are also highlighting the 'empty museum', a phrase that was coined for largely silent native forests where the plants are mostly still there but not much else. The shelves are literally bare.

The first humans to settle in these islands 800 years ago, brought with them the Polynesian rat/*kiore*, whose devastating impact on a raft of birds and invertebrates has only begun to be uncovered in recent years. Europeans brought three more species, two of which – ship rats and house mice – now occupy all suitable habitat on the mainland and many offshore islands as well. With their amazing tree-climbing ability, ship rats have had disastrous impacts on many species of birds, wiping out vulnerable species like saddlebacks/*tieke* on the mainland and making it impossible for them to survive outside fenced 'islands' from which rats have been removed entirely. They have been blamed for several bird extinctions. Ship rats also prey on a wide range of other native animals, including bats, snails and lizards. Their effects on plant life are less clear, but they are known to eat considerable quantities of fruit and seeds.

The mantra of the 1970s - indeed as late as the 1980s - during the great native forest conservation controversies of the era, was that if you save habitat from logging or clearance, you will save the species living in it. In the crudest sense this is true: *kokako* cannot live in dairy pasture of ryegrass and white clover. But populations of many birds continued to collapse after almost all native forest in public ownership was locked up from logging in 1984. Infrared filming of bird nests in Rotoehu Forest by staff of the Forest Research Institute proved for the first time that among other pests, ship rats are major predators of eggs and chicks. Along with stoats, a particular problem for hole-nesting birds like *kaka*, and possums, a problem for almost all tree-nesting birds, rats have been a leading cause of bird declines in our forests.

The one pest that has proved impossible to eradicate from larger fenced sanctuaries is the house mouse, providing researchers with the opportunity to study the effects of this animal alone on native forest. A recent five-year study by Landcare Research on Maungatautari in the Waikato found that mice reduced invertebrate (insect, spider, and earthworm) populations, but had no discernible effect on snails or tree seedlings. Although excellent climbers like ship rats, they appear to pose a much smaller threat to birds.

Other factors are also at work. A recent item on Nine to Noon on Radio New Zealand highlighted the insidious impacts of global

climate change on natural ecosystems through its interaction with native trees and introduced mammals. 'Mast' years – when trees bear exceptional heavy flower and fruit crops – provide ship rats with huge food supplies in beech forest (half the remaining native forest), leading not only to population explosions in rats but also ineffective pest control. Rats prefer natural food to poison! After several mast years in close succession, populations of rifleman, our smallest surviving native bird, have plummeted in a forest near Wellington that was going to be used to source birds for re-establishing the species in Zealandia, the fenced mainland island in Karori. The rifleman translocation is now on hold while they wait to see if the source population recovers. Mast years are thought to be triggered by unusually warm summers the year before, so are likely to become more frequent with global warming. Thus rifleman – already in decline – may well disappear altogether from more mainland forests. They are already long gone from many districts.

Without integrated pest control, the future for native forests, small and large, looks bleak. Large-scale possum control by local government in recent years to control bovine tuberculosis has led to obvious benefits for forest health over wide areas. But unfortunately, the limited evidence available suggests that ship rat eruptions often follow possum control, with unfortunate consequences for birdlife. The ever-growing number of mainland islands around the country with their rudely healthy plant and animal life is starting to show how impoverished are most of our mainland forests, and what will be needed to save them from becoming mere shadows of what they might otherwise be.



South Island Robin, *Petroica australis*, Takaka (Northern South Island). Pest control work has helped repopulate areas where these birds may have died out, due to predators such as rats and stoats. Photo M. Bergin

# FIRST TREE IN THE GROUND FOR WORKSTREAM 1 OUR FOREST, OUR FUTURE PROJECT

This is the trial planting site of the Cranford Forest - it is expected that up to 50 hectares will be planted over the next 10 years. Around 5000 seedlings will be planted at this site, including totara.

David Bergin was responsible for the trail planting layout which proved invaluable. The land is owned by the Christchurch City Council, the trees provided by Trees For Canterbury, planted by Waiora Landscapes and will be monitored by Clayton Wallwork.

Having a high water table, the soil was still very moist and had plenty of worms in the top 20cm. The soil type is peaty.

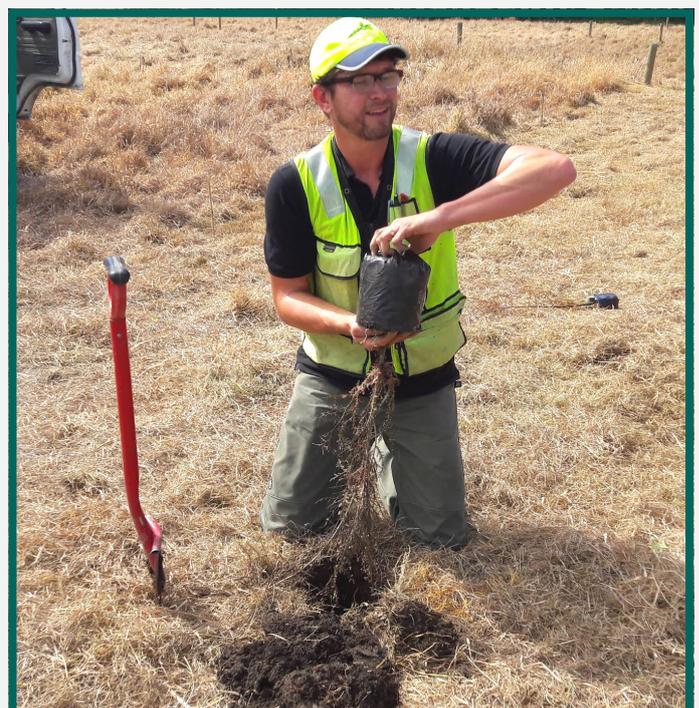
We also hope to trial plug and possibly bare rooted seedlings with podocarp species.



The team with the first tree planted.  
Photo C. Wallwork

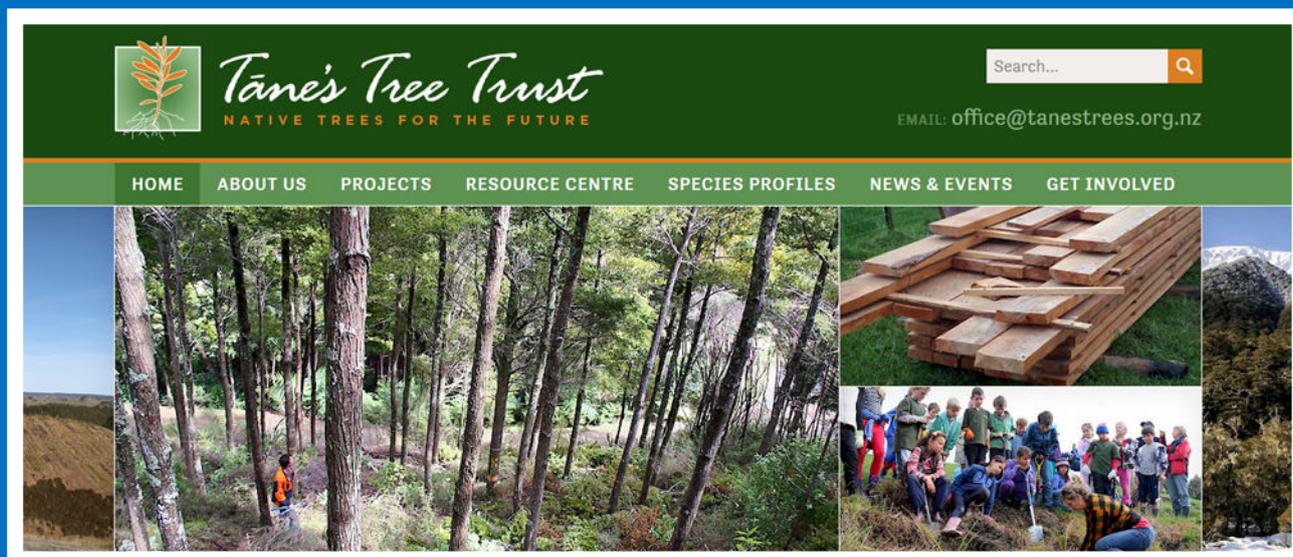


Gareth from Waiora Landscapes plants the first tree.  
Photo C. Wallwork



Clayton Wallwork was involved with the planting of the first 100 kahikatea.  
Photo C. Wallwork

On the web: [www.tanestrees.org.nz](http://www.tanestrees.org.nz)



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