

## Monitoring vegetation at Rewanui

At Rewanui, we want to enrich and expand our unique native bush. Our long-term aim is to restore the native habitat so that a wide range of native plants and animals thrive there. Healthy, diverse native bush is absolutely essential if sustainable populations of as many native birds, reptiles, and insects as possible are to become resident at Rewanui. If we do not provide the right habitat, we cannot expect native fauna to form stable, permanent populations.

The older native bush at Rewanui is already recognised as being one of the best surviving remnants of its type in the region, but, until 2004, it was unfenced and accessible to farm stock. As a result, palatable tree seedlings and other young plants were grazed out of the understorey, reducing habitat diversity, and threatening the long-term future of the bush.

As well as being grazed by farm livestock until 2004, the bush harboured high numbers of pest animals which we began controlling in 2006.

### Controlling pests in our native bush and regenerating areas

Grazing animals, such as sheep and cattle, and wild animals such as deer, goats and pigs, all damage native bush and limit natural regeneration. Smaller pest animals, such as possums, rodents (rats and mice), mustelids (ferrets, stoats and weasels), hedgehogs and rabbits also impoverish native bush by preying on native invertebrates and eating seeds, young plants, and new foliage.

In 2004, we erected fences to keep farm livestock out of areas where we want the native bush to recover and thrive. In 2006, we began a programme of pest animal control. Pest control currently covers possums, rats, mustelids, cats and hedgehogs.

### Monitoring the vegetation

In 2009 we engaged a contractor to undertake a baseline survey of vegetation in some parts of Rewanui. The survey focused on areas fenced to exclude farm livestock. These areas comprise (i) the older areas of native bush, and (ii) the more open, scrubby areas that we hope will revert to native bush by natural regeneration now that livestock have been fenced out.

Our contractor used a formal technique (FORMAK) to assess the vegetation. Ten 20 metre x 4 metre permanent plots have been established, seven in bush areas, and three in more open vegetation. We marked the plots using metal tags and pegs on trees and in the ground, and took GPS coordinates. We can now return



Setting up a plot within the mature native bush.

to these plots over time to see how the vegetation is changing. Using a formal monitoring technique means we can compare the vegetation cover at Rewanui with baseline data from other sites.

Data gathered included the species present in the canopy and understorey, percentage of canopy cover, height of the vegetation, percentage of ground cover, and the amount and diversity of understorey regeneration.



Contrasting vegetation types at Rewanui: (i) mature bush (ii) scrub areas reverting to bush (iii) open grassland.

## Some of our findings

- We identified 22 canopy species; the main ones in the older bush areas are titoki, maire, totara, kowhai, rewarewa, and pukatea, also relatively large kanuka in the bush and open areas.
- Canopy density is variable but relatively low (55%), on average. A less dense canopy means more light can penetrate and this should encourage regeneration, especially of light-demanding species.
- The understorey includes good numbers of moderately palatable browsing species such as rewarewa, and unpalatable species like kawakawa and rangiora. Highly palatable species such as titoki and five finger are relatively sparse as large seedlings. This suggests that deer are browsing these species.
- There are good numbers and variety of regenerating seedlings 15–45 cm high.
- Young rewarewa regeneration (15–45 cm) is very common, but larger rewarewa regeneration is uncommon. This suggests that this regeneration is recent, and its survival may be due to the fact there are no longer any grazing livestock in the bush.

Overall, the survey confirmed that what we have at Rewanui is a good representation of a regenerating lowland hardwood forest – in other words, it is a good place to start from.

As the bush continues to recover and develop, we expect it to become denser and more diverse, but only as long as we continue to control pests and exclude grazing livestock and deer. We plan to return to the plots and monitor the vegetation every five years or so.

## Monitoring vegetation on your own property

Anyone with some knowledge of native plant species (and perhaps a good plant identification guide) can do standardised monitoring of vegetation on their own property. The FORMAK monitoring method is available online for the public ([www.formak.co.nz](http://www.formak.co.nz)). Ideally, perform one round of monitoring before excluding livestock and starting pest control. We suggest you monitor the same place(s) every few years and mark these areas with permanent metal tags. Taking photos from the same specific point every few years also creates a good record of change.

For further advice, and on-site assistance, contact:

1. Your regional council biosecurity team
2. Private specialist contractors.

### More information

#### 1. Pest control and monitoring native wildlife at Rewanui

See other Information Notes in this series.

#### 2. About the work at Rewanui

Montfort Trimble Foundation:  
[www.trimblefoundation.org.nz](http://www.trimblefoundation.org.nz)

Tree species trials: Stuart Orme, Woodnet  
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MAF's Sustainable Farming Fund supported our trials and monitoring from 2008–2011.

Nyree Fea surveyed the vegetation at Rewanui.

Peter Handford (PA Handford and Associates) advised on the FORMAK technique and analysed plot data.

Rewanui belongs to the Montfort Trimble Foundation, a trust dedicated to growing trees for the benefit of local people. The farm is being developed as a trial and demonstration property. Our focus is on new approaches to adding trees to the farming mix.

Photos: Nyree Fea

