

## NZFFA Joint Action Groups weekend – 4th and 5th November 2017, Masterton Hosted by the Indigenous Forest Section and the Wairarapa Branch of the NZFFA

### WELCOME TO REWANUI FOREST PARK

Welcome to Rewanui Forest Park, one of two properties owned by the Montfort Trimble Foundation. The Foundation was established thanks to a legacy left by Masterton resident Dr Montfort Trimble, who died in 1940. Dr Trimble specified that the legacy be used for 'public afforestation' with the emphasis on benefitting local people. The legacy was initially administered by the Masterton County Council, which evolved into the Masterton District Council (MDC). The Montfort Trimble Foundation (MTF) was formally established by an Act of Parliament in 2004, making it financially independent from the MDC.

Rewanui's 334 hectares has been allocated to a range of different uses according to its potential. The best land is leased for livestock grazing, while the remainder is divided between native bush, plantation forestry, areas reverting to native forest, and tree trials. The whole of Rewanui is open to the public year-round, with a network of footpaths and trails.

Plantation species include radiata pine, redwoods, and small areas of cypress, cedar and eucalypts. As well as the series of native tree trials established in 2006, Rewanui has exotic species demonstration plots, plus NZ Dryland Forests Initiative durable eucalypts breeding and demonstration trials, a Scion mixed species trial, and two manuka trials/demonstrations.

The mature native bush is designated a Key Native Ecosystem by Greater Wellington Regional Council (GWRC), and as a result the Council provides subsidised pest control throughout the property. GWRC is also about to embark on a biodiversity monitoring programme at Rewanui. A full biodiversity monitoring programme was last undertaken in 2008 – 11, so it will be very interesting to learn how different species have fared over another six years of intensive pest control.

The MTF has a voluntary Board of Trustees; current chair is Andy Pottinger, a Wairarapa farmer with a strong farm-forestry heritage. Stuart Orme of Woodnet is contracted as MTF operations manager. The Foundation has close links to the Wairarapa Branch of the NZFFA, with a number of key people active in both organisations.

### NATIVE SPECIES TRIALS AT REWANUI - UPDATE 2017

The Montfort Trimble Foundation (MTF) established a series of native tree trials at Rewanui Forest Park in 2006, with input from forest manager Stuart Orme of Woodnet and members of Tane's Tree Trust. Tane's Tree Trust also helped MTF's late chairman, Ian Campbell, with early monitoring. The aim of the trials was to assess survival and early growth of a total of 15 native tree species in different light conditions – full shade, part shade and open.

Thirty three trial plots were established, comprising the following species:

Conifers	Hardwoods
Rimu	Black beech
Totara	Red beech
Kahikatea	Silver beech
Kauri	Rata
Matai	Tawa
Miro	Kowhai
	Black maire
	Rewarewa
	Puriri

Each tree was individually GPS-mapped and labelled using a permanent peg at planting. All trees have been assessed annually for:

- survival
- height
- stem diameter at ground level (root collar diameter)
- stem diameter at breast height (1.4 m – DBH) once tall enough
- plant vigour.



Data gathered are entered into a database, analysed, and then, using software designed by Ian Campbell, a graphic representing each plot is produced. These graphics can be seen on a board at each plot, and are also available of the Montfort Trimble Foundation website – [www.trimblefoundation.org.nz](http://www.trimblefoundation.org.nz).

In 2015 a full assessment of the planted natives was undertaken by Woodnet. The decision was made to stop measuring 11 of the 33 plots, because of high mortality and/or very slow growth rates. The plots no longer monitored include some or all of the plots of following species: tawa, kauri, red beech, maire, miro, and kahikatea. The reasons for poor performance of various species in different locations have not been fully analysed or reported on.

### RELATIVE GROWTH RATES 2015

Fig 1 shows the relative mean height and diameter growth of native trial species in plots measured in 2015.

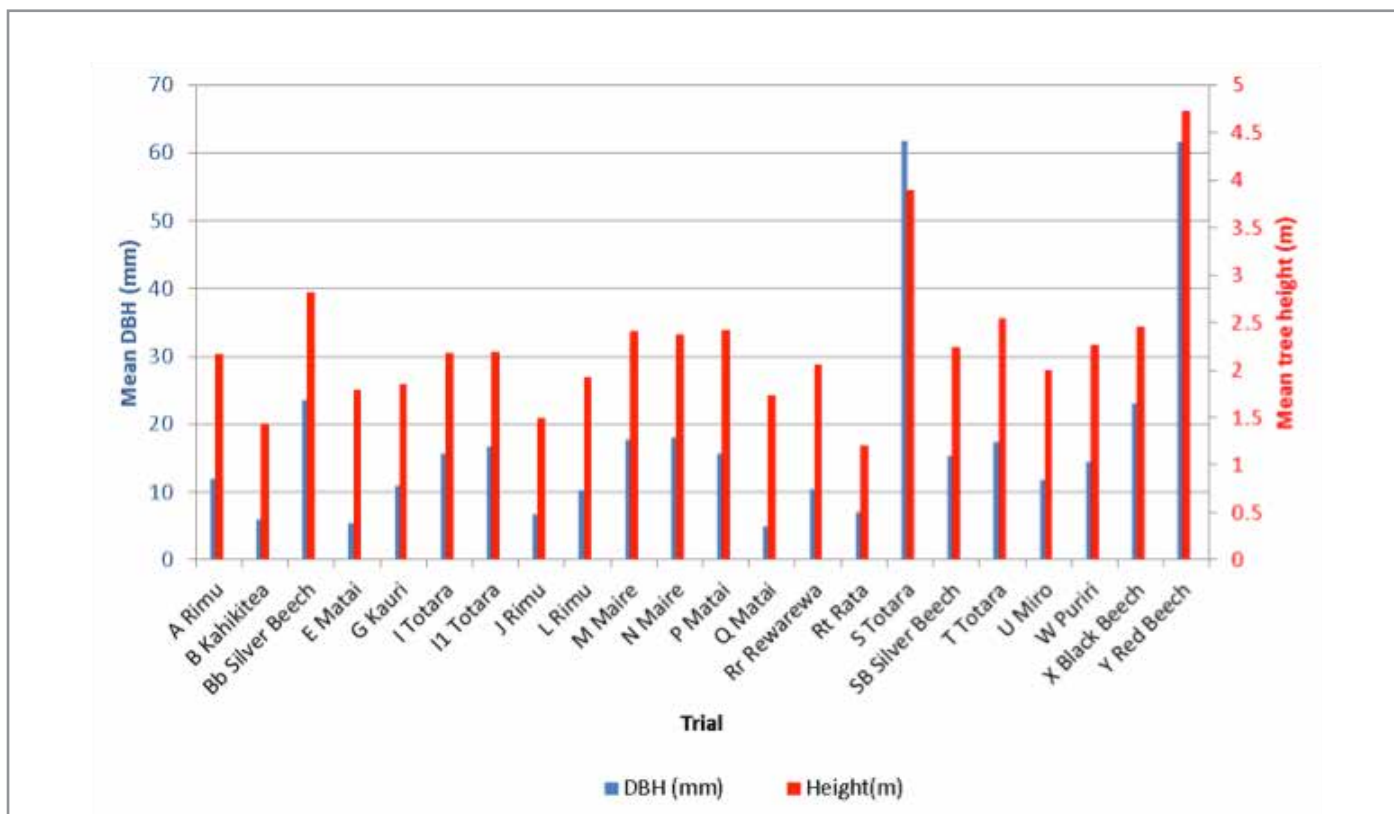


Figure 1: Mean DBH (mm) and mean tree height (m) for surviving trees in indigenous trials at Rewanui in 2015. (N.B. Dead trees are excluded from this analysis. Data from 2016 and 2017 is available but yet to be analysed.)

### TOTARA PLOTS – RESULTS TO DATE

Four totara plots were included in the 2006 plantings. These plots are identified as Plots I, I1, S, and T. Since the trees were planted, two reports (Bergin and Palmer 2012; de Jong 2015) – have been produced analysing the performance of the trial species; the following summary is derived mainly from those reports.

### EARLY PERFORMANCE

Overall, totara has been the fastest growing conifer with highest survival of any species. A total of 152 trees were planted in the four plots as follows:

Plot I.D	Light conditions	No. trees planted	Survival % (including one blanking operation in 2007)
I	Mainly canopy; part shade	29	93
I1	Part shade; open	21	90
S	Open	51	100
T	Mainly part shade	51	100



The stand-out totara plot is Plot S, where in 2017 many of the trees are now over 6 metres high. This plot is in an open, sheltered and sunny location, with no obvious limiting soil factors. It provides a convincing example of the potential of plantation totara in suitable conditions. Due to their open-grown nature, many of the trees in Plot S have multiple leaders and steep-angled branches. The trees were form-pruned once in 2011, and in 2017 are overdue for a further, major form-prune.

The key factor differentiating the totara at Rewanui from the other native species in the trial is its very high survival rate in all light conditions.

## BEECH PLOTS – RESULTS TO DATE

Six beech plots were established in an open area at Rewanui as follows:

Plot I.D	Species	Light conditions	No. trees planted	Survival % (including one blanking operation in 2007)
AA	Red beech	Open	12	8 (No longer measured)
Y	Red beech	Open	40	90
X	Black beech	Open	90	22
Z	Black beech	Open	12	42
Bb	Silver beech	Open	63	35
SB	Silver beech	Open	50	76

As can be seen from Fig 1, the best performing beech trees, particularly red beech, have grown well. Had all trees survived and grown as well as the best-performing trees, they could well have reached canopy closure after 10 years.

Plot locations vary from a dry ridge through gentle sheltered slopes. Some trees were planted in an area which is occasionally water-logged. Beech is known to prefer shelter when it is young, but an analysis of growth and mortality over the ten years since establishment in the six beech plots, according to species and tree location, would be valuable. Deer damage is a further significant factor which compounded poor growth in some locations. Trees have been both browsed and ring-barked by antler-rubbing.

The combined beech plots at Rewanui show the importance of good site selection, early maintenance and deer control for any landowner intending to establish plantation beech. Remaining trees at Rewanui need to be form-pruned, and those with no near neighbours will need clear-wood pruning in due course, although this will increase the risk of ring-barking by deer.

## THE FUTURE OF THE REWANUI NATIVE SPECIES TRIAL PLOTS

After ten years of annual monitoring, there is a wealth of data and potentially a lot to be learnt from these trials. The Montfort Trimble Foundation is very keen to gather opinions about how best we can:

- i. capitalise on the information gathered from the trials to date, and
- ii. manage the trials in future to provide value to the native tree planting community and the wider public.

### More details/contacts

Please contact Harriet Palmer with any feedback or ideas you may have: [harriet.e.palmer@gmail.com](mailto:harriet.e.palmer@gmail.com)

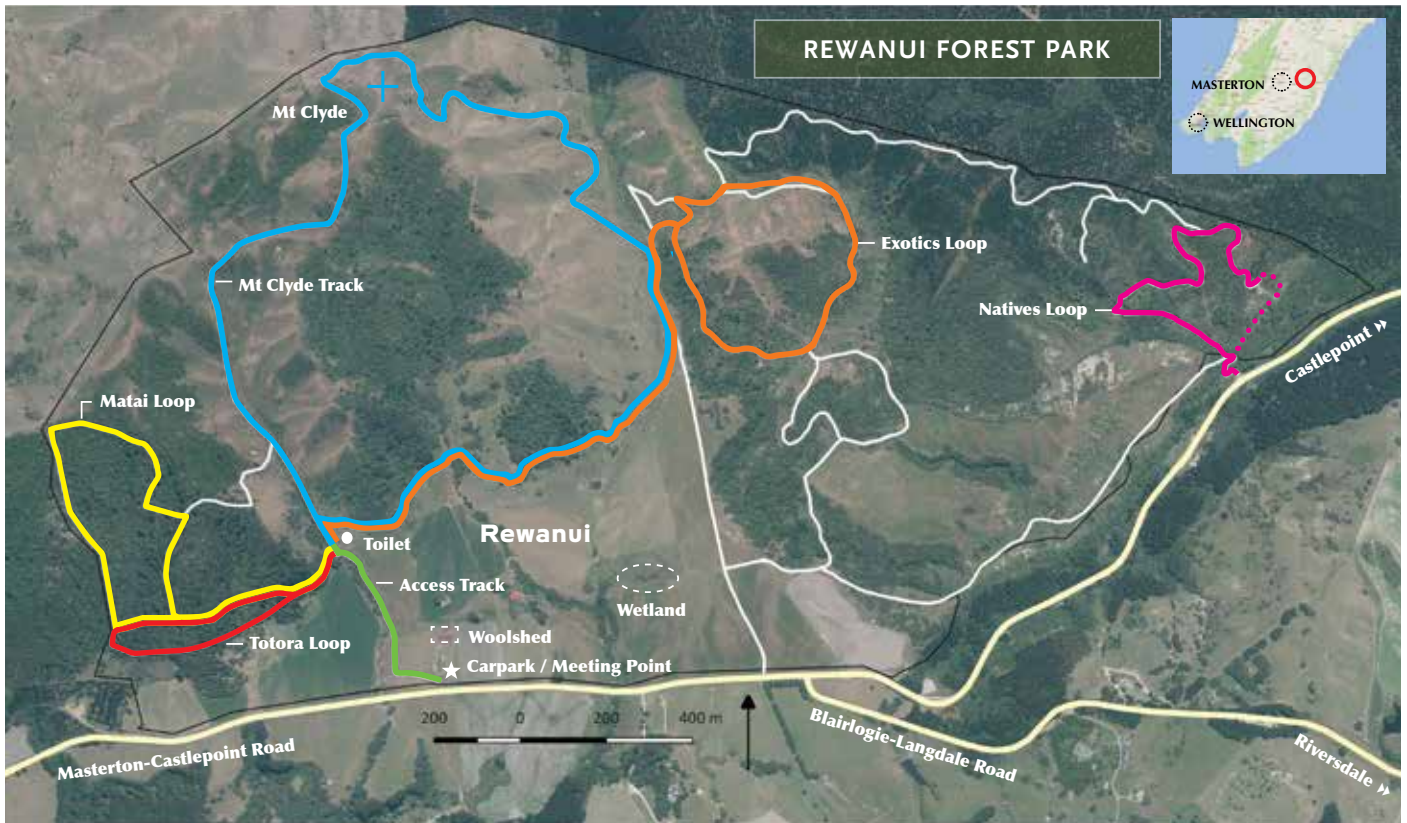
David Bergin and Harriet Palmer (2012): *Establishing and managing a native production forest: Rewanui Forest Park, Wairarapa*.  
By, Tanes Tree Trust Technical Article 10.7, Tanes Tree Trust, N.Z.

Patrick de Jong (2015) *Rewanui 2015 Trial Measurement Report*.  
Unpublished report by Woodnet 2005 Ltd, Masterton, N.Z.

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**WALKING TRACKS:**

- Access Track – 10 mins, easy
- Totoro Loop – ¾ hour, moderate
- Matai Loop – 1¾ hours, moderate-steep
- Mt Clyde Track – 2 hours, exposed, moderate
- Exotics Loop – 1½ hours, easy
- Natives Loop – 1 hour, moderate

Note: Explore other tracks at your leisure



**INDIGENOUS TREE TRIALS:  
PLOT LOCATIONS**

