

Exotic tree species trials

In 2006 we began planting trials of a range of tree species, including eight exotic (non-native) species. Our main aim is to trial alternative species to radiata pine.

As a rule, alternatives to pine grow more slowly and are more site-specific, but have the potential to produce higher value timber. All the species planted at Rewanui produce high value timber when grown in conditions that suit them.

Our trials will demonstrate how well the various species perform at Rewanui. For some of the main plantation species (radiata pine, cypresses, and coastal redwood), we have planted different varieties or clones to compare their performance. We plan to monitor all the trees over several decades, and will pass on what we learn to farmers and others.

Species planted at Rewanui

Common name <i>Botanical name</i>	Current status in New Zealand	What you can see at Rewanui <i>(Observations to mid 2011)</i>
Radiata pine (Monterey pine) <i>Pinus radiata</i>	By far the most common plantation species in New Zealand. Genetically improved and clonal stock available. Versatile, highly productive species, with ready domestic and overseas markets.	We grow radiata pine at a commercial scale at Rewanui. Trees include some clonal material. Pine is not monitored at the same intensity as the trial species listed below.
Douglas fir <i>Pseudotsuga menziesii</i>	Second largest plantation area in NZ. Grown widely in the southern South Island and colder sites elsewhere. High-value structural timber. Genetically improved stock available.	One plot. Relatively slow growing, but Douglas fir is generally a slow starter. Mortality ~ 7%
Mexican cypress (‘Lusitanica’) <i>Cupressus lusitanica</i>	Cypresses occupy the third largest plantation area in NZ. <i>C.lusitanica</i> is a close relative to <i>C.macrocarpa</i> . Similar timber to <i>C.macrocarpa</i> , so a ready market. Genetically improved stock available.	Two plots. Variable performance, but low mortality. Average mortality ~ 4%
Ovens cypress <i>Cupressocyparis ovensii</i>	A cold-hardy cypress hybrid with good growth rates, form, and disease resistance. Timber likely to match other cypresses.	Two plots of different clones at Rewanui. Both clones performing well, one outstanding. Low/no mortality.
Redwood (Coastal or Californian) <i>Sequoia sempervirens</i>	Recent upsurge in interest in NZ, with some significant areas planted in the past few years. North American markets seen as having huge potential. Genetically improved & clonal stock available. One of the few conifers that coppices (regrows from a cut stump).	Four plots of different clones plus one plot of seedlings. One clone outstanding. Seedlings poorer than all clones. Mortality 0% – 10%
Messmate <i>Eucalyptus obliqua</i>	A minor species in NZ. One of many eucalypts that can be grown in NZ as long as species is matched to site. <i>E.obliqua</i> timber is used in Australia for a range of products.	One plot. Very variable performance: some trees >5 metres by 2011, some <1 metre. Mortality ~ 7%
Japanese cedar <i>Cryptomeria japonica</i>	A minor species in NZ, although popular in some parts as a shelterbelt species. Widely grown in India, China, and Japan. Light timber used extensively in house-building in those countries.	One plot. Relatively slow growing, and above average mortality, but survivors are now growing well. Mortality ~ 23%
Japanese larch <i>Larix kaempferi</i>	A minor species in NZ, but widely grown in northern Europe and Japan. Larches are one of the few deciduous conifers. Strong, light, durable timber with many uses.	Poorest performer of all exotic trial species at Rewanui. Trees do not appear to be thriving on this site. Mortality ~ 23%
Western red cedar <i>Thuja plicata</i>	A minor species in NZ, but many of NZ’s older weatherboard houses are clad in western red cedar imported from the USA. A cold- and shade-tolerant species, with durable, aromatic timber.	Variable performer. Some trees > 2 metres by 2011 and thriving. Mortality ~ 18%



Eucalyptus obliqua



'Lusitanica'



Ovens cypress



Redwood



Japanese cedar



Japanese Larch (autumn colours)



Douglas fir



Western red cedar

Planting and early management

All exotic tree species were planted in August 2007. Planting stock was obtained from a range of nurseries. All plots are on unimproved hill grazing land, typical of the type of land farmers may be considering planting. No fertiliser has been applied.

Trees have been spot-sprayed, or 'released' at least twice since planting, to reduce competition from surrounding vegetation. Dead trees were replaced one year after planting, ('blanking'), but since then there has been no further blanking.

In future we will manage the trees for high-quality timber production. In most cases this will mean pruning the trees to produce knot-free wood ('clearwood').

Monitoring the trials

Each plot contains an average of 50 trees. Every tree is individually labeled, and measured once a year. Data is recorded using the 'Trees' software tool developed by Ian Campbell. The monitoring results are on display at the trial site, and will be made available on our website, along with individual tree records.

Where to find our species trials

The trials are located on the eastern side of the farm. Maps are available in the carpark, or can be downloaded from our website. There are good walking tracks around the trials, and the different species are clearly labeled. You are welcome to visit at any time.

More information

1. About the work at Rewanui

Montfort Trimble Foundation:
www.trimblefoundation.org.nz
Tree species trials: Stuart Orme, Woodnet
stuart@woodnet.co.nz

2. Establishing and managing trees on farms

The NZ Farm Forestry Association:
www.nzffa.org.nz

Acknowledgements

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Rewanui is a typical hill-country sheep and beef farm in eastern Wairarapa. The 344-hectare farm 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, with the focus on new approaches to adding trees to the farming mix.

Photos: Harriet Palmer

