Northland Totara Working Group Newsletter

NZ Landcare Trust
landcare action on the ground

Sept 2009

NORTHLAND TOTARA WORKING GROUP

Totara – a great wood!

Attendees at a recent workshop held at Hikurangi heard the virtues (and challenges) of the use of this resource from a miller and an end user.

Portable saw-miller Martin Cruse related that totara is an easy timber to mill and dry requiring no special treatment or handling. In his experience Northland totara is much stronger than totara in the central North Island (which has a reputation for being slightly brittle). He reported a slowly increasing demand for totara and knew of it being used for many purposes from stockyard rails to high value internal features and linings such as architraves (in new and very expensive designer houses). Equally encouraging is news of perhaps a recent shift in market demand for more "coloured" totara – a grade of wood that includes a noticeable colour variation or transition between the lighter sapwood and darker heartwood. This would be very fortuitous in finding greater market opportunities for the younger regenerating resource (that has a high proportion of sapwood and young heartwood).

John Marley of Natural Timber Creations, presented many convincing examples of extremely high-quality interior joinery using totara. These included whole kitchens, bathroom vanities, chairs, turned bowls and even steam bent and laminated cabinet doors. Some items were made entirely from light-coloured sapwood, others from dark heartwood and some from "coloured" grades. Modern products overcome the gluing and finishing difficulties once experienced with the species. In his opinion regenerated totara is superior to macrocarpa and clients have been very pleased with the results.

The Northland Totara Working Group (NTWG) has five broad objectives:

1. To quantify the resource of naturally regenerating totara
2. To demonstrate the growth response of naturally regenerating and planted totara to silviculture
3. To determine wood qualities and potential uses of farm-grown trees
4. To investigate the feasibility of developing a supply chain from resource to market
5. To identify and overcome hindrances to sustainable management of totara.

Established in 2005 and coordinated by NZ Landcare Trust, members of the NTWG include landowners, Farm Forestry, FNDC, NRC, MAF, wood millers and processors, Tane's Tree Trust, NZ Forest Owners Association, and Scion.

The Working Group meets on a regular basis to discuss progress and provide direction and input into the initiatives underway. Those interested are welcome to come along to these meetings.

However a lack of available supply "when we need it" of ready-to-use, and well-graded lines of timber means he is reluctant to promote totara as an option to clients.

The Northland Totara Working Group hears many accounts of farm-totara that has been used for a wide variety of uses; from shed framing to furniture, even flooring. Evaluating and documenting the performance of some of these examples may be a practical method of establishing suitability for potential uses and possible markets for the various timber grades.

The group will continue to explore opportunities and frameworks to encourage the supply and use of Northland totara to ensure that the productive potential of this resource is realized.

Tane's Tree Trust
Native Trees for the Future

- Hine Rangi Trust -

Sustainable Farming Fund
Ministry of Agriculture and Forestry
Te Manatū Ahuwhenua, Ngāherehere

NORTHLAND REGIONAL COUNCIL

Far North District Council

SCION
Next generation biomaterials

Silvicultural Trials of Naturally – regenerating Totara Stands in Northland.

Many people share the perception that all natives grow slowly – and a 40 year old sapling with a diameter of just 15 cm does little to dispel that. But often the slow growing tree is growing at 3000 stems per hectare – so no wonder it is struggling for light and nutrients!

Can thinning of these dense stands produce a growth rate that can be classed as 'productive'? Thanks to funding from MAF's Sustainable Farming Fund, Tanes Tree Trust, Scion, NRC and recent support from Hine Rangi Trust, the group has been working with Dr David Bergin from Scion to establish 38 Permanent Sample Plots (PSPs) in a range of totara-dominant pole stands on 10 farms in Northland to answer this.

The trial aims to provide landowners with a greater understanding of the growth response of totara to thinning and pruning, and to measure possible growth rates of totara when the high natural stocking rate is not limiting growth.

Established in mid-late 2007, the sites are in 3 clusters – Whangarei (18 plots), Kaeo-Okaihau (13 plots), and Herekino (7 plots). A range of thinning regimes have been applied to these dense pole stands. An additional 4 plots had been established in a 20 year-old totara plantation near Auckland.

All plots were located in representative areas of totara-dominant forest. This is highly variable - even over short distances tree sizes, stand density and species composition can change significantly. Care was required in sitting the plots to allow for fair comparison of treatments.

Before silvicultural work began, in excess of 5000 trees were measured and recorded across all the plots. Average stand height ranged from 8 – 15 m and diameter at breast height (DBH) ranged from 10 – 18 cm.

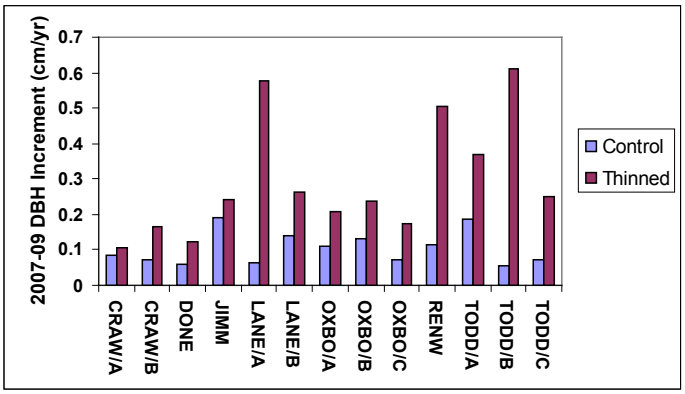
Stands were thinned from densities of over 6000 stems per ha down to varying levels of stocking ranging from 700 to over 2000 stems per ha influenced by natural variation in species composition, tree size and a preference to maintain a consistent stocking over plot areas. Percentage of the stand removed by thinning varied from 25-81%. Between 15-60% of the basal area has been removed by thinning.

Pruning was carried out, involving removal of all branches from 2 - 8m above ground level on all residual crop trees including multiple leaders and larger steep angle branches. Height of pruning was determined on tree size, with the aim of leaving at least one third of the green crown.

Re-measurement of all the PSP's was carried out mid-2009, 2 years after thinning.

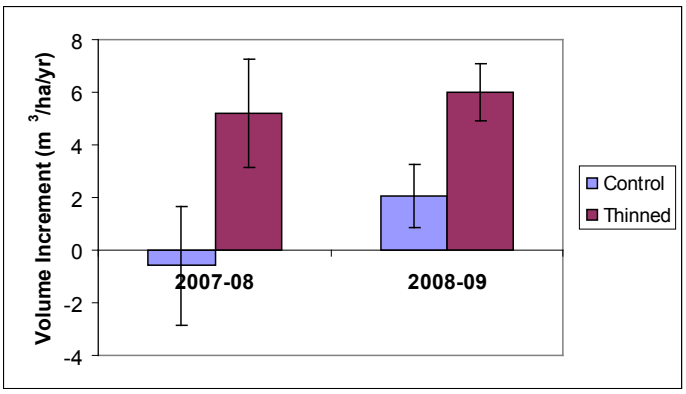
Thinning has resulted in a significant increase in diameter growth of trees compared to non-thinned controls at all sites.

However, there are significant differences between sites. Three sites showed a 4-5 fold increase in mean annual diameter growth over the two years after thinning. Most others showed a 2-3 fold increase, but some low productivity sites have only had a marginal increase in growth of totara to thinning. Averaged over all the plots, thinning gave an almost 3 fold increase in diameter growth with a trend towards faster growth in the second year after thinning compared to the first year.



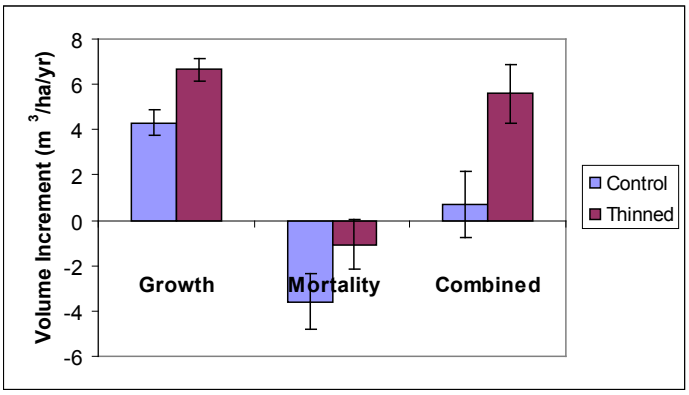
Mean annual Diameter at Breast Height (DBH) increment for non-thinned control plots and thinned plots established in naturally-regenerating totara pole stands in Northland. Some sites had more than one thinned plot so growth data has been combined. Most sites were thinned 2 years ago but 2 plots (not shown) were thinned several years earlier.

Mean annual Diameter at Breast Height (DBH) increment for non-thinned control plots and thinned plots established in naturally-regenerating totara pole stands in Northland. Some sites had more than one thinned plot so growth data has been combined. Most sites were thinned 2 years ago but 2 plots (not shown) were thinned several years earlier.



Annual volume increment across all sites for the non-thinned control and thinned plots established in naturally-regenerating totara stands in Northland for the first and second year after thinning treatment was applied.

When mortality and volume growth are combined, thinned totara pole stands are producing nearly 6 m3/ha per year compared to less than 1 m3/ha per year for non-thinned poles stands.



Mean annual volume increment and decrement for growth, mortality and growth and mortality combined across all sites for the non-thinned control and thinned plots established in naturally-regenerating totara stands in Northland.

Conclusion: While these early results do indicate a significant increase in productivity of totara poles stands on farms to thinning, the response is highly variable between stands. This variability in growth is likely to be related to the intensities of thinning. As early concerns at increasing vulnerability of heavily thinned stands to windthrow has not been founded, further thinning of slow growing lightly thinned stands can be contemplated. A full assessment of the thinned and control plots will be required in three years time to determine growth response to silviculture treatments five years after the trial was established. Continuing research will also investigate the option of improving productivity with application of fertilizer, especially for slow growing stands.

Do you have any planted native trees?

Millions of native tree seedlings have been planted through out NZ over the past 150 years for a range of purposes, including timber and ecological uses. Little is known about the performance of these plantings or their management history.

Over the next two years, Tane's Tree Trust will be seeking out landowners of planted native stands to request access to inspect plantations, assess growth performance and tree form. With the permission of landowners this may involve establishment of Permanent Sample Plots, and making information available in summary form. Confidentiality protocols regarding stand information will be adhered to as agreed with landowners. The information will add to growth and carbon accounting models.

If you have planted native trees on your place, you are encouraged to contact David Bergin for a short questionnaire to fill in – (07) 343 5899 or David.Bergin@scionresearch.com

Want to know how much you've got?

Thanks to NRC support for an Envirolink application, David Bergin has produced a new report "Assessing regenerating totara on the farm: A preliminary guide for landowners in Northland".

It provides a preliminary method by which landowners, with little or no previous knowledge, can assess the nature of their regenerating totara forest. It is not a comprehensive survey method but rather outlines a technique which enables a rapid preliminary estimate of the area and broad characteristics of the resource which can then be used to identify options for future management. The report covers topics such as:

- The characteristics of the species
- Determining the extent of different stand classes of totara
- Assessment of stands including tree diameters, heights and tree form
- Recording and summarising field data
- Considering management options, and
- MAF contact details for those interested in harvesting and milling indigenous timber.

The report is easy to read and well worth a copy for those interested in investigating the management of totara or other native species on their property. Contact Helen Moodie for a copy.

Coming Up – Workshop in November

Celebrating 10 years since Tāne's Tree Trust was formed, the Tāne's Tree Trust Ten Year Anniversary Conference and Workshop "Native Trees for the Future – Towards a National Strategy" will be held in Hamilton on November 18-20 2009. This conference will celebrate some of the milestones achieved in those 10 years. Workshops and invited papers will highlight the current problems and lead the way to the development of a National Strategy on native forest management.

The Northland Totara Working Group will feature in the first workshop convened by Helen Moodie on productive use of native species.

Other workshops will look at establishment, the role of ecosourcing and research needs. Guest speakers include our very own Paul Quinlan and David Bergin!

So come along for 3 days of formative action – more information available from Helen Moodie.

Tane's Tree Trust
Native Trees for the Future

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