

Project Update - March 2012 to June 2012

(This project update is a summary of the NZDFI SFF progress report to MAF for this period.
A full copy of this report is available on request.)

Durable eucalypt breeding population establishment/management

All breeding populations planted in 2011 were released sprayed in late summer or early autumn. A survival and height assessment was also completed in late summer. 90-99% survival was recorded at all sites except the *E. globoidea* planted on Poverty Knob on the Avery's property at Grassmere in South Marlborough. (Refer to Appendix 1). Poverty Knob is the driest site that NZDFI have planted eucalypts. The low rainfall in early spring imposed conditions that killed some seedlings. A full family assessment at the end of next summer will reveal the most drought adapted provenances of *E. globoidea*.



Figure 1: View of Poverty Knob *E. globoidea* breeding population planted last year on Avery's property that can be seen from SH 1 south of Seddon.

Atkinson's site was not fully assessed as a section of the trial was damaged by stock not long after planting. Late spring blanking was necessary and a formal assessment of this site was deferred. However, an inspection in April recorded that the stock damage has not had a noticeable adverse effect on tree form and a formal assessment is planned for end of next summer.

This year 15,000 seedlings of another 75 families of *E. bosistoana* will be planted. Sites have been identified for planting at Dillons in Marlborough, JNL's Ngamu forest in Wairarapa and McNeill's in Hawkes Bay. This will extend our breeding populations of this species to over 150 families. In addition, 10,000 seedlings have been grown from improved Australian seed of *E. cladocalyx* and *E. camaldulensis* to be planted in mass selection trials this spring. Landowners have offered sites in Hawkes Bay, Wairarapa and Marlborough.

There has also been further maintenance of the *E. bosistoana* breeding populations planted in 2009, including low pruning and culling of poor trees within the MDC river reserve at Cravens Road.

SUPPORTERS:

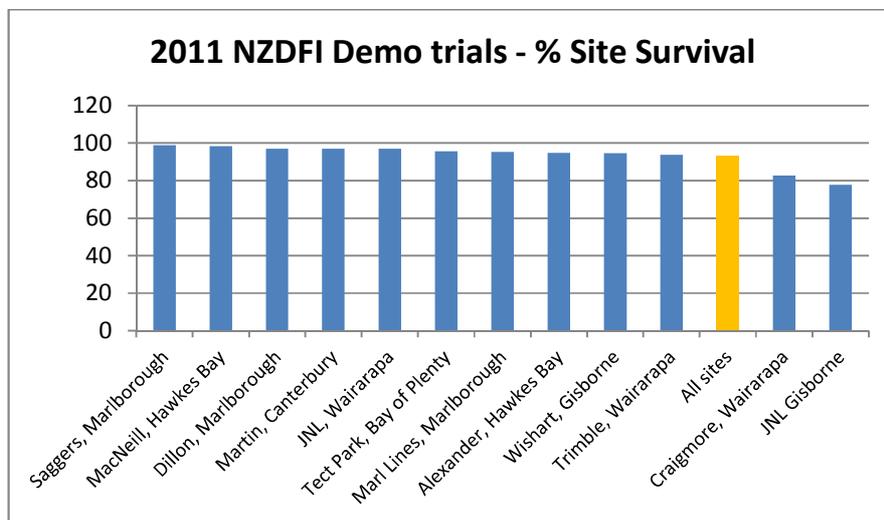


An analysis of the first assessment of *E. bosistoana* breeding populations planted in 2010 is underway. Early results indicate that while there is good survival, there is a distinct difference in seedling growth rates based on seed provenance with the higher altitude *E. bosistoana* provenances collected in NSW not performing as well as the lower altitude Victorian provenances. However, there are individuals from the higher altitude areas that are doing well. These differences are consistent across all 3 sites.

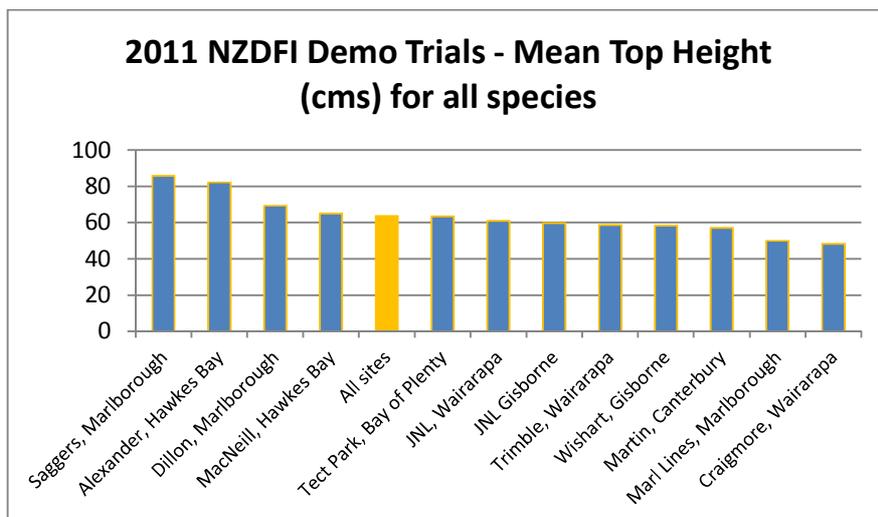
Demonstration trial establishment and assessment

Site visits to all demonstration trials planted in 2011 were undertaken during January and February to check weed control and complete form pruning. In addition an early survival and height assessment was undertaken. The results from the early survival and height assessment are shown in the tables below.

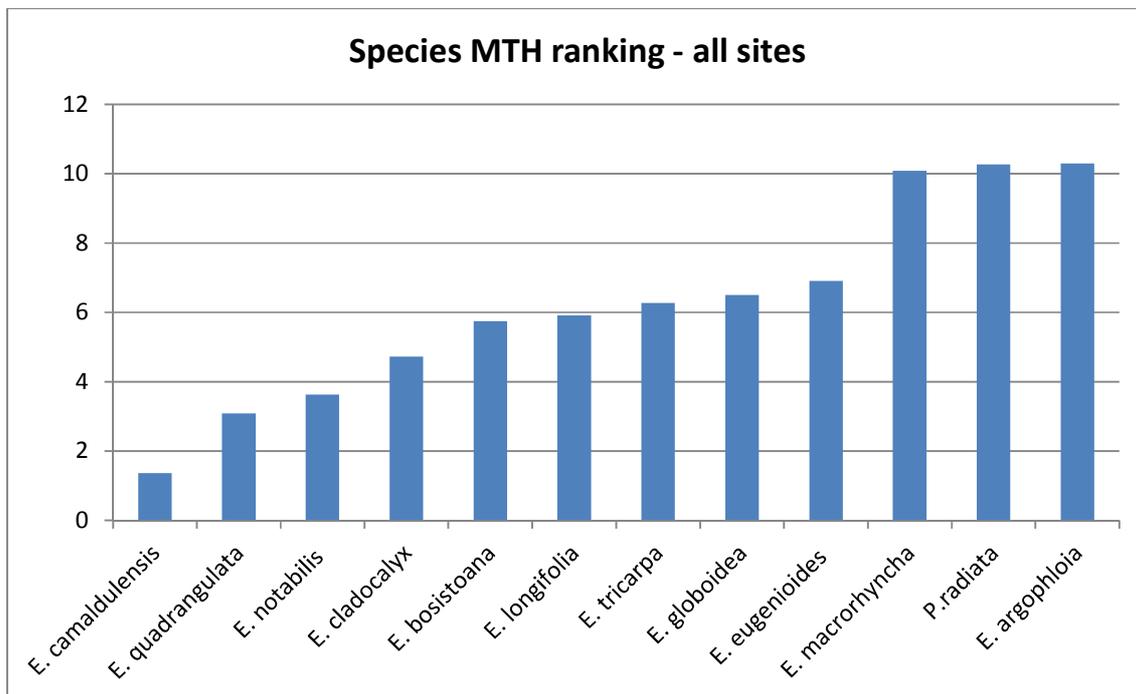
The best seedling survival of 99% is at Sagers in Marlborough with all other sites ranging from 91-98% except the site at JNL's Totara forest in Gisborne that is 78% (due to part of the trial being severely damaged by deer browse).



Sagers site also recorded the highest for seedling mean top height (86 cm) of all species with the mean top height in all other sites ranging from 48-82 cm.



A ranking of the mean top height for each species across all sites was calculated by scoring 1 for the tallest species at each site, through to 12 for the shortest species. This is shown below with *E. camaldulensis* having the fastest early growth with *E. argophlia* being the slowest.



Photos of some of the demonstration trials and breeding populations planted in 2011 are attached in Appendix 2.

Two additional demonstration trials are planned for planting this spring. Sites for these trials include one in Gisborne offered by Juken NZ and a site near Hunterville that has been offered by the NZ Redwood company.

Project Management & Governance

Meetings were held in June of NZDFI's Science Team and Executive Management Team. The annual Project Management Committee meeting was also held in the Marlborough Research Centre lecture theatre on 7th June. Minutes of this meeting are attached in Appendix 3.

This meeting was followed by a field trip to view trials planted last year at David Dillon's property in the Waihopai valley. The day before the field day there was a rare snowfall to low lying areas of Marlborough including the Dillon property. This resulted in a very interesting afternoon for those on the field trip as seen in the photos in Appendix 4.

Meetings are planned on 17th October at Marlborough Research Centre of NZDFI's Science Team and Executive Management Team.

NZDFI leaflet series, Regional Field Day/Workshops

The leaflet series has been pushed out to the end of October 2012 for completion. This will allow more of the current research work to be included. A field day is being planned for 29th September 2012 in Hawkes Bay while a field day and workshop is planned for 15th November 2012 in Gisborne. Field days and workshops are being planned in other regions in early 2013.

New linkages with other projects or research programmes

University of Canterbury's three summer scholarship students continue working on projects linked to the NZDFI research programme.

NZFFA/FFR project has been approved SFF support for 'Scoping potential Biological Control for Eucalyptus Tortoise Beetle larvae.' NZDFI is interested in the successful outcome of this project.

NZFFA Eucalypt Action Group has been approved SFF support for 'Improved siting recommendations for farm forestry eucalypts using GIS maps.' NZDFI will be directly involved in providing species/site information to be included in this project.

The TV programme 'Rural Delivery' screened a story about the NZDFI programme on 18th March. This can be seen on TV One 'on demand' <http://tvnz.co.nz/rural-delivery/s8-ep2-video-4781282>.

Project Funding

The formal establishment of the NZDFI in July 2008 was made possible when the Marlborough Research Centre Trust (MRCT) was successful in receiving from the Agricultural and Marketing Research and Development Trust (AGMARDT) an \$80,000 grant for a three year R&D programme.

AGMARDT's grant ensured the commitment of the NZDFI founding members and other supporting agencies. The project timeframe was extended to four years in 2009 and then, in 2010 NZDFI was successful with an application to the Sustainable Farming Fund. This leveraged wider regional council support and extended the NZDFI programme beyond the milestones and term of the AGMARDT project.

Therefore, the milestones and financial reporting for the final two years of the AGMARDT programme have been consolidated within NZDFI's SFF programme with AGMARDT continuing its support for NZDFI until 30th June this year. A final report to AGMARDT has been completed and NZDFI appreciate the foresight and confidence AGMARDT had giving 'start up' support to the durable eucalypt R&D programme.

An extra \$20,000 in funding has been received from Proseed NZ to cover the costs for the pruning and thinning work at the Cravens Road site, additional planting planned this spring and costs for preparation of the MSI proposal referred to below.

In addition, the School of Forestry has given an extra \$30,000 for the purchase and siting of climate stations. This will fund the setup of equipment at up to five NZDFI trial sites. The data collected will be combined with measurement of the eucalypts so as to understand the adaptability of these species to different NZ environments and to develop a decision support system for siting these eucalypts for optimal productivity and health.

UoC/NZDFI Proposal for R&D funding from Ministry of Building, Innovation and Employment

In late February, it came to the attention of the University of Canterbury (UoC) that the recently established Ministry of Building, Innovation and Employment (MBIE) was seeking proposals for specific 'Targeted Research' investment by government in purpose-driven research, science, and technology aligned with national priorities that generate economic, environmental, or social benefits for New Zealand. This included a specific category for genetic development/improvement of emerging species that are economically useful and/or environmentally beneficial. Given that this specific investment portfolio strongly aligns with the NZDFI purpose, the decision was made for the UoC to submit a proposal.

This was completed by the University of Canterbury (UoC) in a very short timeframe and submitted on 5th April 2012 with the support of the founding partners. A summary of the proposal is attached as Appendix 2 of this report.

The proposal is for \$3.8 m MBIE funding over six years for the NZ Dryland Forests Initiative tree breeding and extension programme. In conjunction with this funding, NZDFI is seeking \$1.02 m financial support from NZDFI founding partners as well as our industry and regional government supporters and \$200k in kind from our host landowners.

In conjunction with the MBIE R&D programme, NZDFI plans to make an application to MPI's Sustainable Farming Fund later this year so as to continue our regional extension programme. This will include more regional workshops/field days and a professional development course in dryland durable eucalypt forestry for regional land

managers and forest consultants. NZDFI are also in consultation with MPI's Maori Primary Sector Partnerships for assistance to engage local iwi in the opportunity to plant durable eucalypts on their lands.

Preparation of the MSI proposal involved the UoC/NZDFI Science team meeting in many hours drafting the proposal. All current NZDFI financial supporters were contacted and written requests made for their continued financial support for NZDFI's proposal to MSI.

This included making formal submissions to the Regional Long Term Plans of Gisborne District Council (GDC), Greater Wellington Regional Council (GWRC) and Environment Canterbury (ECAN). During May, presentations were made to LTP hearings of all these three councils.

Anyone wanting further information should contact Paul Millen 03 574 1001 or p.millen@xtra.co.nz

Appendix 1 – Table showing survival of breeding populations planted 2011

Monitoring of Breeding Populations - Summary of Results

Species	Site	% Survival	MTH Height (cm)
E. globoidea	Avery	82.1	63.9
	Atkinson JNL Ngamu	93.2	64.7
E. quadrangulata	Cuddon	99.2	97
	Martin	92	69
	MacNeill	92	96
	Trimble	100	90
E. argophloia	Cuddon	94	71
	Dillon	94.2	51.7
	JNL Ngamu	88.3	48
E. tricarpa	Dillon	95.2	78
	Avery	100	80
	Trimble	98.8	74

Appendix 2 - Photos of 2011 NZDFI trials



Figure 2: Healthy well established *E. longifolia* at Sagers site in January.



Figure 3: Rick Alexander admires his 6 month old *E. notabilis* in February.



Figure 4: Well established *E. globoidea* breeding population at JNL's Ngamu forest in Wairarapa.



Figure 5: Ruth McConnochie assesses *E. argophloia* at John and Robyn Cuddon's property in Marlborough.

Appendix 3 - Minutes of NZDFI Project Management Committee meeting held 7th June 2012

Marlborough Research Centre, Budge Street, Blenheim

Start time: 10:20am Finish time: 11:55am

Present:

Kevan Buck	NZDFI Secretary
Paul Millen	NZDFI Project Mgr
Gerald Hope	MRCT (Deputy Chair)
Ben Dougherty	MPI
Ruth McConnochie	Consultant
Andrew Costello	Juken NZ
Ash Millen	Vineyard Timbers
Francis Maher	MDC
Roger May	Tomorrows Forests
Sam Scarratt	Wither Hills
Rosa Davison	Landowner
Bev Doole	Journalist
Tracy Williams	MPI
Te Puoho Katene	MPI
Phil Kirk	MPI
Edwin Pitts	MRCT
Andrew Ritchie	Journalist

Apologies:

Shaf van Ballekom	Chairman, Proseed
John Walker	School of Forestry
Nick Dalgety	MPI
Louise Askin	MPI
Murray Mannall	Southern Woods
Sheldon Drummond	Juken NZ
Luis Apiolaza	School of Forestry
Euan Mason	School of Forestry
Steve Bezaar	MDC
David Dillon	MTGA

Welcome

Gerald Hope welcomed everyone and chaired the meeting in Shaf's absence due to weather precluding travel from Christchurch

Approval of Minutes from meeting held 23rd May 2011

Motion: That minutes of 23rd May 2011 be approved

Moved: K. Buck Seconded: P. Millen Carried

Matters Arising

There were no matters arising.

Chairman's Report

Gerald gave the chairman's report. He commended everyone on progress made and acknowledged the support of landowners and funders. More land is to be planted this year and more seed collected. SFF funding will continue for another 12 months. A DVD of the "Rural Delivery" episode featuring the NZDFI was shown. Paul was commended on his promotional activities.

NZDFI Science report: The genetics of early adaptation of E. bosistoana

Ruth gave this presentation on behalf of Luis Apiolaza. *E. bosistoana* is the flagship species. It comes originally from central NSW and Victoria. Seed has been collected across a range of sites to give a broad range of genetic material. Trials have been planted in 2009 and 2010. More trials will be planted in 2012. The 2010 trials were planted across 3 sites – Avery and Cravens in Marlborough and Martins in Canterbury. A total of 47 *bosistoana* families were included in these trials plus 2 controls of *globoidea* and *quadrangulata*. Survival has been good apart from *globoidea* at Martins and Cravens. There are differences in performance in height growth depending on seed origin. Performance is consistent across sites, which gives good information for future tree improvement research. *Quadrangulata* is performing well across all 3 sites. There is some sawfly damage at the Avery site but there doesn't appear to be any genetic link to resistance at this stage.

Review of 2011-2012 R&D programme & 2012-13 Plan

Paul summarised progress in the past 12 months. 100,000 trees have been planted (2009-2011) across a range of sites and regions. Plantings in 2011 include several species of interest outside the 5 identified breeding species. Sites were planted in Gisborne, Bay of Plenty, Hawkes Bay, Wairarapa, Marlborough and Canterbury. Paul went through the sites showing photos and giving a brief description of each. Paul acknowledged the efforts of field crews and Morgan's Rd Nursery. Survival has generally been very good.

A very successful workshop was held in November 2011. Three forestry students have been involved in research projects. The UoC and NZDFI have submitted a joint proposal to MSI for a 6 year project to continue the programme. Co-funding from NZDFI supporters will be necessary if the MSI proposal is successful. The NZDFI is seeking \$1 million additional funding from supporters.

Linkages with other SFF funded research programmes in eucalypt site mapping and pest control have been established. Weather stations are being set up at 5 sites.

Additional trials are being planted in 2012. In early 2013, survival and height assessments will be undertaken. Weed control and form pruning will also be done. Sample trees at Harewood nursery will be destructively tested for wood quality assessment. Regional field days will be held across regions in the next 12 months. A leaflet series will be completed and published by October 2012.

NZDFI Financial Report

Gerald and Kevan gave an update on the NZDFI financial plan. The project is on schedule financially. In-kind support has been a significant input. Gerald acknowledged the support of SFF in particular, Janine Alfeld. Gerald stressed that the Marlborough Research Centre aims to be a research provider across a range of industries. The following motion was put to the meeting:

Motion: *That a letter be sent to Janine Alfeld thanking her for the support of SFF*

Moved: *Gerald Hope* Seconded: *Paul Millen* Carried

Appendix 4 - Annual Project Management Committee field trip to NZDFI trials at David Dillon's property, Waihopai Valley trials on 7th June.



Figure 6: Field trip attendees checking well established *E. tricarpa* in the snow at Dillons.



Figure 7: Paul Millen talking amongst the *E. quadrangulata*.



Figure 8: View east across trial site with the *E. cladocalyx* almost clear of snow on the warmer north facing spur in the top left hand corner of the photo. *E. tricarpa* can be seen in the foreground.



Figure 9: Roger May admires 9 month old *E. camaldulensis*.