

FILE NOTE

Subject: *E. macrorhyncha* and class 1 red timbered species project – stage 1

Date: 26 April 2023

Author: R. McConnochie and P. Millen

File Number: ITP-FN001

Update on Stage 1 – Trial assessment and candidate tree selection February to mid-April 2023

E. macrorhyncha is represented in NZDFI trials planted 2011-2018 with over 50 PSPs located across 21 sites. This trial network now provides a valuable resource to extend knowledge of the physical, growing and economical characteristics of this species. These plantings are a NZ genetic pool in which to identify and select locally adapted elite trees for a future *E. macrorhyncha* tree breeding programme.

Within the NZDFI trial network there is a group of three species that produce class 1 durable red-coloured hardwood. These are *E. argophloia*, *E. tricarpa* and *E. longifolia*, and they are represented in some of the 2011, 2013 and 2014 trials established by NZDFI to test these species. In addition, NZDFI has small breeding programmes of *E. argophloia* and *E. tricarpa* planted in 2011.

This file note is an update on the progress of Stage 1 – Trial assessment and candidate tree selection for core sampling heartwood properties and *E. macrorhyncha* seed collection.

A review of the PSP data base was completed to finalise the trial assessment programme.

Since the project started there have been significant issues with booking travel on the Cook Strait ferries. In addition, Cyclone Gabrielle impacted travelling to Northland, Hawkes Bay and Gisborne.

Therefore, the field assessment programme has been focused in the Wairarapa, Marlborough and Canterbury. Field assessments have been completed within 11 NZDFI trials of *E. macrorhyncha*, *E. argophloia*, *E. tricarpa* and *E. longifolia* that included measuring DBH and heights (except where 2022 data is being used) as well as assessing form and if any flowering and/or seed capsules are present.

One demonstration trial planted in 2014 at Chamberlain property in Canterbury was visited but any assessment was abandoned due a combination of poor survival and most trial pegs missing due to cattle being inside the trial area.

At most sites assessed there have been at least 20 candidate trees identified for coring across the various replicated blocks of the species represented in the trial. There have been fewer candidates of *E. argophloia* selected as it has slower growth than other species and therefore smaller trees not large enough for coring.

There have been 19 plus trees of *E. macrorhyncha* identified as candidates for seed collection within 4 of the 8 trials assessed where this species is represented. Of these, 14 have been identified within one trial planted in the Marlborough Regional Forests (MRF) Waikakaho property. This site was planted as a seed stand in October 2005 with five provenance seedlots of *E. macrorhyncha* as a joint venture by MRF, Proseed NZ and Vineyard Timbers Ltd. The trial includes;

- a block planting with each provenance seedlot planted in a randomized layout at a 3m x 3m spacing.
- a row plot planting of each provenance seedlot at a 3m x 1m spacing.

While over 600 trees were planted, the trial has been substantially thinned. There are two PSPs within the trial that were re measured.

A summary of the trials, plots measured and no. of candidate tree selections is shown in Table 1.



Figure 1. 18 year old *E. macrorhyncha* plus tree selected for seed collection in MRF Waikakaho trial



Figure 2. 12 year old *E. longifolia* selected for coring in Sagers trial

Table 1. Summary of trials measured and tree selections.

Region	Landowner	Plant Yr	Type	Plot Size	E.argophloia		E. longifolia		E.tricarpa		E.macrorhyncha			Remeasured	Comment
					No. of PSPs	No. of trees to core	No. of PSPs	No. of trees to core	No. of PSPs	No. of trees to core	No. of PSPs	No. of trees to core	No. of trees for seed collection		
<i>Cant</i>	<i>Chamberlain</i>	<i>2013</i>	<i>DEMO</i>	<i>100 tree</i>											
Cant	Macbeth	2014	DEMO	100 tree	1	5	1	20	1	20	1	20	1	19-Apr-23	Abandon
Cant	Martin	2011	DEMO	49 tree	2	13	2	25	4	29				18-Apr-23	Red paint marked. No E. mac seed trees
Marl	Avery	2011	BP	20 tree					1	25				19-Apr-23	Red paint marked.
Marl	Dillon	2011	BP	16 tree										4-Apr-23	1 PSP = 8 trial plots
Marl	Dillon	2011	DEMO	49 tree			2	17	3	24	3	27	3	30-Mar-23	Assessment of 21 blocks incl the PSP
Marl	Dillon	2018	DEMO	100 tree					3		3	3		28-Mar-23	Red paint marked.
Marl	Lissaman	2013	DEMO	100 tree					3		3	3		30-Mar-23	Use 2022 E.tricarpa data
Marl	MRF Waikakaho	2005	FOREST						2	26	2	25			Use 2022 data, interruption with vertex, no E. mac seed trees
Marl	Saggers	2011	DEMO	49 tree	2	16	3	26			2		14	29-Mar-23	
Wair	Trimble	2011	DEMO	49 tree					3	26	3	22	1		Use 2022 data
Wair	Williams	2013	DEMO	100 tree					2	25	3	25		27-Feb-23	Red paint marked. No E. mac seed trees
Wair	Williams	2013	DEMO	100 tree					2	31	3	27		1-Mar-23	Red paint marked. No E. mac seed trees

