

NZDFI Durable Eucalypt Demonstration Trial

Establishment Report

September 2011

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Summary

The NZDFI is a collaborative cross-sector research and development project that is researching and promoting genetically-improved naturally-durable eucalypt species for planting on drought prone and erodible pastoral land within New Zealand. The work of the NZDFI is based at the Marlborough Research Centre in Blenheim with a science and extension programme that includes Gisborne, Hawkes Bay, Wairarapa, Marlborough, Canterbury and Bay of Plenty.

The performance of durable eucalypt species is of interest to any land managers using tantalised posts. In particular Bay of Plenty industries such as kiwifruit orchards, vineyards, farmers etc are all potential users of durable eucalypts for posts and sawn timber.

A demonstration trial of 11 durable eucalypt species, plus pine for comparison purposes has been established at TECT Park between Rotorua and Tauranga. The species planted are:

- *E argophloia*
- *E bosistoana*
- *E camaldulensis*
- *E cladocalyx*
- *E eugenoides*
- *E globoidea*
- *E longifolia*
- *E macrorhyncha*
- *E quadrangulata*
- *E tricarpa*
- *Pinus radiata*

This report documents plot locations and layout.



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Property Details

Location and address TECT Park, SH 36(Pyes Pa Road).....
Legal description: ID 1671/11; Pt Lot 2DP345266 Ngawaro Road; 165 ha
V#0687508500.....
Owner(s) TECT Park; (WBOPDC &TCC).....

Site Details

Trial Reference TECT Park.....
Area (ha) 1.2 ha
Grid reference E1882389; N5770973.....
Location Description; North of Weld Road/Te Aro O Raho Road
intersection.....

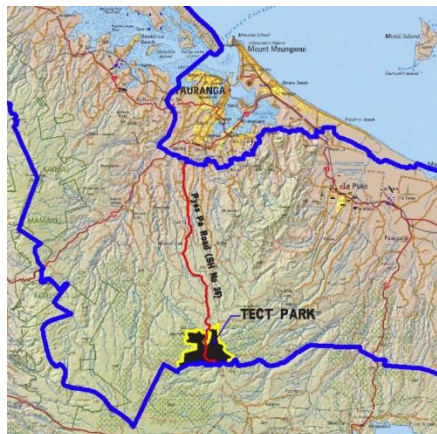


Figure 1: Location of TECT Park

Establishment Programme

Site preparation

Ex radiata site logging debris mulched, with north west corner cleared into adjacent windrows.
Pre plant spray, aerial spraying of metsulfuron applied at 150grams/ha on the 22nd of May, 2011.
Preplanting preparation: 30 plots pegged with *E. globoidea* pegs and all planting spots marked before planting. All pegs numbered (551-596).

Planting

Planting of 1470 containerised stock (Table 1) completed by Dean Anderson planting gang of three on September 22, 2011 according to randomised planting pattern from Ruth McConnochie for NZDFI (see Table 2).

Plantation Design

30 plots (Figure 2) of 19.6 x 19.6 m (49 trees (7 x 7 trees)) at 2.8 x 2.8 m spacing (1,280 stems/ha).



Figure 2: Layout of plots on site

Eleven durable eucalypt species plus *P. radiata* as a control, with eight species replicated three times and three species (*P. radiata*, *E. argophloia* and *E. cladocalyx*) replicated twice (Table 1).

Table 1: Species and seedling numbers

<i>E argophloia</i>	98	<i>E longifolia</i>	147
<i>E bosistoana</i>	147	<i>E macrorhyncha</i>	147
<i>E camaldulensis</i>	147	<i>E quadrangulata</i>	147
<i>E cladocalyx</i>	98	<i>E tricarpa</i>	147
<i>E eugenoides</i>	147	<i>Pinus radiata</i>	98
<i>E globoidea</i>	147		

Planting Day comments

Planting stock arrived in Rotorua Friday 16th and held in Mainfreight warehouse until Monday as Ian was out of town till Sunday, placed in a trailer and stored in the Nicholas garage. Seedlings transported to TECT Park on Wednesday 21st and stored overnight in TECT Park workshop.

Planted on Thursday 22nd. Weather clear with light winds, some difficulty in planting where logging debris packed down and soil difficult to locate. The western and northern areas had easier planting on disturbed soil where windrows were pushed to side to allow room for all plots. (Figure 3)



Figure 3: Northwest corner of trial, note disturbed soil on left hand side and large stump(Unplanted between plot 27 and 28)



Figure 4: View of South East corner, note park road adjacent and horse trail between road and trial

One plot (between plots 27 and 28) was not planted as it had a large rata stump in the middle. For some reason two *E. macroryncha* seedlings were left over after planting plot 16. At the start two *E. eugenioides* from plot 1 were accidentally planted in *E. camaldulensis* plot 2. These were replaced in SE corner buffer area of plot 2 with the surplus *E. macroryncha*. Seedling quality was good overall but it appeared after planting that *E. globoidea* were smaller in stature than *E. eugenioides*. Some seedlings had dropped some leaves after handling and storing but these were in the minority. A few radiata pine terminals were wilting after planting. Steady light rain fell in the area on Sunday morning, the third day after planting. This was followed by frosts on the Monday and Tuesday. Overall an excellent site (Figure 4) for demonstration purposes which park users will follow with interest.

Key contacts

- **Ric Balfour**
 - TECT All Terrain Park Manager
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 - ric.balfour@westernbay.govt.nz
- **Jarron McInnes**
 - TECT All Terrain Park Ranger
 - Rangers Station 07 929 8720
 - Cell; 0275 400052

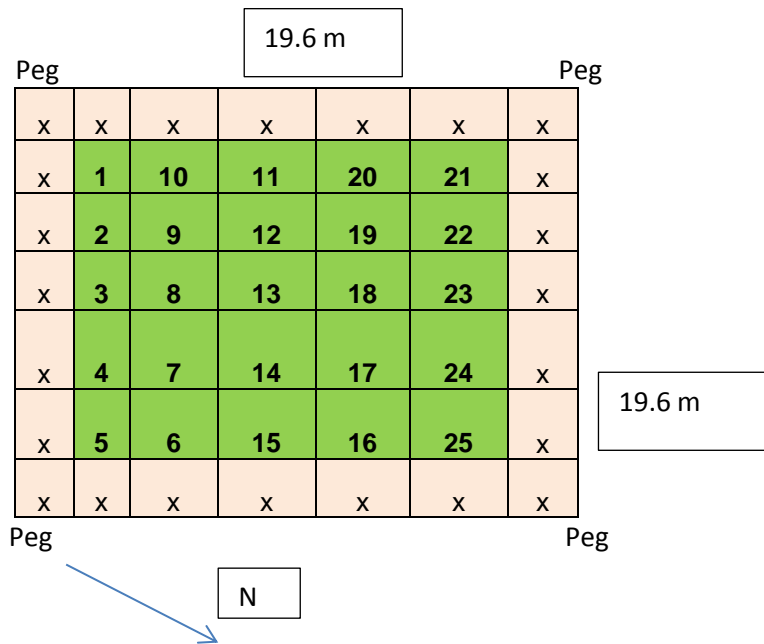
Table 2: Layout identifying plots, species and peg numbers

NZDFI Durable Eucalypt Trial TECT Park
Established September 2011

		573		Plot 21			596
				<i>P. radiata</i>			
551	Plot 1	572	Plot 20	574	Plot 22		595
	<i>E. eugenoides</i>		<i>E. bosistoana</i>		<i>E. tricarpa</i>		
552	Plot 2	571	Plot 19	575	Plot 23		594
	<i>E. camaldulensis</i>		<i>E. quadrangulata</i>		<i>E. argophloia</i>		
553	Plot 3	570	Plot 18	578	Plot 24		593
	<i>E. globoidea</i>		<i>E. macroryncha</i>		<i>E. longifolia</i>		
554	Plot 4	569	Plot 17	577	Plot 25		592
	<i>E. quadrangulata</i>		<i>E. camaldulensis</i>		<i>E. globoidea</i>		
555	Plot 5	568	Plot 16	578	Plot 26		591
	<i>E. longifolia</i>		<i>E. macroryncha</i>		<i>E. eugenoides</i>		
556	Plot 6	567	Plot 15	579	Plot 27		590
	<i>E. camaldulensis</i>		<i>E. cladocalyx</i>		<i>E. tricarpa</i>		
557	Plot 7	566	Plot 14	580			589
	<i>E. tricarpa</i>		<i>E. argophloia</i>		Blank-Stump		
558	Plot 8	565	Plot 13	581	Plot 28		588
	<i>E. bosistoana</i>		<i>E. globoidea</i>		<i>E. quadrangulata</i>		
559	Plot 9	564	Plot 12	582	Plot 29 587		
	<i>E. eugenoides</i>		<i>E. cladocalyx</i>		<i>E. longifolia</i>		
560	Plot 10	563	Plot 11	583	Plot 30		586
	<i>E. macroryncha</i>		<i>E. bosistoana</i>		<i>P. radiata</i>		
561		562		584			585

Measurement plot:

An internal measurement plot of 25 trees will be used for recording performance



Acknowledgements

The support of the TECT Park and Environment Bay of Plenty in this project is most appreciated, as is the on-ground assistance of TECT park staff Ric Balfour and Jarron McInnes for organising site preparation and tree planters.

The role of Morgan’s Road nursery in seedling production and dispatch is also acknowledged. Thanks are also due to others who offered planting sites, but for a variety of reasons were not selected.

Links

www.tectallterrainpark.co.nz

www.nzdfi.org.nz