Tour 3: On-Farm Multipurpose Plantations

This Tour is proudly sponsored by:

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Private Forests Tasmania is the only government-funded authority established in Australia to specifically promote, foster and assist the private forestry sector on forestry matters. We provide strategic and policy advice to Government on private forestry issues and represent Tasmanian private forest owners’ interests nationally.

Private Forests Tasmania works to facilitate and expand the development of the private forest resource in Tasmania in a manner which is consistent with sound forest and land management practices. This includes advising and assisting private landowners in the management of native forests and the establishment and management of plantations on private land. We work closely with private landowners and major stakeholders to develop and deliver a wide range of services to ensure sustainable forest use.

Sustainable private forestry in Tasmania is an integral and crucial part of our social fabric, economic well-being and a healthy environment in which soil, water and biodiversity are valued and widely used.

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<thead>
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Acknowledgements

The contribution made by our hosts on the 4 properties visited during this field day, is gratefully acknowledged. Rob Henry and John Heard at ‘Formosa’, Robbie Tole at ‘Greenvale’, Andrew and Scott Colvin at ‘Nosswick’ and Malcolm Tilsley have all opened their properties, values and aspirations to share with us on this tour.

This field day has been organised by Private Forests Tasmania, assisting our hosts tell the stories of their experiences and choices they have made in farm management and farm forestry.

Our hosts are community leaders and have been generous in allowing PFT staff, and others, to cut, paint, entertain, measure and experiment on their properties in the name of gaining knowledge and sharing it with others. For this we extend our gratitude.

A field day is only as good as the food provided. We thank the Ladies of the Bracknell Primary School Parents and Friends Association for providing great food for our enjoyment.

We acknowledge the support we have received from the locally owned and operated McDermott’s Coaches over many years. On numerous field days, and now, the third AFG Conference, (in living memory), McDermotts have traversed many highways, byways, country roads and farm laneways to get us to our destinations in comfort, and home again safely.
## Program

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30 am</td>
<td>Assemble and Depart</td>
<td>Hotel Grand Chancellor Cimitere Street, Launceston</td>
</tr>
<tr>
<td>9:15 am</td>
<td>‘Formosa’ – MORNING TEA</td>
<td>‘Formosa’ 1903 Cressy Road Cressy</td>
</tr>
<tr>
<td></td>
<td>Making the right choices. Plantations for multipurposes.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Managers past and present, Rob Henry and John Heard. Farm shelter an</td>
<td></td>
</tr>
<tr>
<td></td>
<td>essential component of livestock management.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Martin Moroni (PFT) – PFT Agroforestry project and experimental work</td>
<td></td>
</tr>
<tr>
<td></td>
<td>on ‘Formosa’</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Wood grown in Shelterbelts Nigel Gibson (Pentarch) and David Bower</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(PFT)</td>
<td></td>
</tr>
<tr>
<td>10:30 am</td>
<td>Depart</td>
<td>‘Formosa’ - Cressy</td>
</tr>
<tr>
<td>11:00 am</td>
<td>‘Greenvale’</td>
<td>‘Greenvale’ 1381 Saundridge Road Cressy</td>
</tr>
<tr>
<td></td>
<td>• Robbie Tole - Making the choice to grow trees on ‘Greenvale’, making</td>
<td></td>
</tr>
<tr>
<td></td>
<td>productive use of degraded land, and farm shelter.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Nigel Gibson – export markets for P. radiata</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Barry Crawford (AKS Forest Solutions) – domestic markets for P. radiata</td>
<td></td>
</tr>
<tr>
<td></td>
<td>including markets for intermediate products.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• David Bower (PFT) - How much wood is being grown?</td>
<td></td>
</tr>
<tr>
<td>11:45 am</td>
<td>Depart ‘Greenvale’</td>
<td></td>
</tr>
<tr>
<td>12:15 pm</td>
<td>‘Noswick’ - LUNCH</td>
<td>‘Noswick’ 157 Blackwood Creek Road Blackwood Creek</td>
</tr>
<tr>
<td></td>
<td>• Andrew Colvin - Trees in my irrigated landscape.</td>
<td></td>
</tr>
<tr>
<td>1:45 pm</td>
<td>Depart ‘Noswick’</td>
<td></td>
</tr>
<tr>
<td>2:00 pm</td>
<td>Tilsley Property</td>
<td>Tilsley Property 126 Smith Road Blackwood Creek</td>
</tr>
<tr>
<td></td>
<td>• Forestry - making the right choice.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Native forest harvesting, aiding and abetting plantation development.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• David Bower (PFT) - matching the species to site and sound silviculture</td>
<td></td>
</tr>
<tr>
<td></td>
<td>in a shifting market.</td>
<td></td>
</tr>
<tr>
<td>3:00 pm</td>
<td>Depart Tilsley Property for return to Hotel</td>
<td></td>
</tr>
<tr>
<td>4:00 pm</td>
<td>Arrive at Hotel</td>
<td>Hotel Grand Chancellor Cimitere Street, Launceston</td>
</tr>
</tbody>
</table>
Tour Overview

Tour Leader: Mr David Bower
Private Forests Tasmania
Phone: 0417 014 241
Email: david.bower@pft.tas.gov.au

Visit leading farm forestry properties along the Western Tiers to see how landholders are building and applying knowledge to:

- Pinus radiata and eucalypt plantations integrated planning, silviculture, productivity, nutrition, genetics and provision of environmental services.
- Eucalypt trials (high rainfall) for high quality timber.
- Integrated plantations for salinity and water table control, gorse control, shelter and timber.
- Forest conservation.
- Biodiversity.

PRIVATE FORESTS TASMANIA
Facilitating the sustainable management of native and plantation forests on private land in Tasmania

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‘Formosa Estate’

1903 Cressy Road, Cressy 7302
Rob Henry and John Heard

Trustee and Former Manager of ‘Formosa’
Mr Rob Henry
About Formosa

The Bushrangers

The district was a famous and lucrative haunt for bushrangers of whom some gruesome stories were told. The graves of four men murdered by outlaws is marked by a tree growing in front of the chapel at “Darlington” near Cressy. Gibbet Hill a mile out of Perth on the Launceston road, is so named from the fact that here executions were carried out, the bodies being tared and left swinging in the wind as a warning to other evil-doers.

The Lawrences

Mr William Effingham Lawrence arrived at Port Dalrymple in 1823 in his own ship, the 70 tonne sloop “Lord Liverpool”, bringing with him his family, servants and the stock and equipment for his farm. He settled first at Point Effingham near the Tamar Heads but later moved into a home he built in Launceston and where he lived while the land was being cleared and buildings erected on his substantial grant at ‘Formosa’, near Cressy. The first log house was completed in 1824 but was burnt down by bushranger, Mathew Brady, two years later. Brady had had a grudge against William Lawrence.

(The second homestead also burnt, and the current home is the third.)

Undeterred, Mr Lawrence built a second and larger homestead on the site and his descendants now operate several notable properties throughout the district. The property, whilst managed by a board of trustees, still remains in the Lawrence family. Rob Henry has been on the board of trustees since around 1991, and is business manager of ‘Formosa’... and about to retire from the position. John Heard has returned from a family farm in NSW to take over from Rob.

‘Formosa’ the Farm

Today ‘Formosa’ measures some 1,600 ha in 3 levels or terraces above the Lake River. The property currently runs approximately 7,000 sheep and 300 breeding cows plus replacements. This includes 3,000 merino ewes and almost 2,000 cross-bred ewes making up both a good wool operation and a substantial prime lamb operation. 550 ha of the property is cropped annually with around 400 ha being irrigated.

The property includes 320 ha of ‘marsh’ or floodplain along the Lake River that flood readily and remain green throughout summer. This is the reason for maintaining a herd of breeding cattle “... and we can turn off some beautiful calves.” “... it’s just too risky to have large numbers of sheep down there...”

There is a levy system which protects the next level or terrace from flooding. This terrace supports heavy black fertile soil, where most of the high value cropping is done. Some wheat barley and oats are grown under irrigation, along with poppies, peas, grass seed, clover seed, broccoli and peppermint.

The third terrace is where the homestead is located, along with shearing shed, machinery etc. This terrace forms approximately half of the farm and is dedicated to sheep and over wintering of cattle. Some dryland crops are grown here “and it’s quite a different soil type, and it’s at that level that all our tree planting has taken place over the years.”
A chat with Rob Henry – Trustee and Manager

Why tree planting...

...I’m not sure that any actual clearing took place as such and the only reason I say this, and it’s a fascinating bit of history, but Dick Lawrence told me when I became a Trustee, (that was back in the early 90’s whilst we were standing out on that terrace), the Powranna Road part of the farm where we’ve planted all of the pine trees, and he said to me, he said “70 years ago, you could not see 100 metres here for timber”. And I think a lot of the timber just died and was removed as it died. ...that comment that he made to me led to a lot of what we’ve done tree wise on that part of the farm.

Tree planting and salinity....

To go back to when Dick started talking to me about the number of trees that used to be on that Powranna Road part of the farm, and I imagine all the high terrace part of the farm would have been the same at some stage, we also used to look at the salt situation there and I started to learn a bit more about salt and realised that we were only looking at the discharge areas and I start to think, all those trees used to be on that terrace were probably controlling the re-charge and they’ve all gone. So that drove that pine planting, including 20 hectares we did in one year. The aim was to try and get trees back on that country. In the meantime they did a salt survey and it came to light that there’s a big salt deposit in that part of ‘Formosa’ and the only thing it couldn’t tell us was how deep it was, but we know it’s there. So obviously we need to somehow manage the water going into that country; so I wanted to plant as many trees as I could get in there without affecting the agricultural use so we stuck to the existing fence lines and that intercepted most of the bad weather.

Trees and irrigation systems....

And of course now, in hindsight, there’s enormous potential to develop centre pivot irrigation in that part of the farm? We have our allocation out of the Lake River of 5,500 mega litres. So we’re sitting on a big asset which we’re actually not using and it teases the mind a bit saying gosh, we should be utilising that asset in some way. So it’s created some progress towards looking at how we can irrigate ground with linear type irrigation without affecting too many trees.

Thoughts on Radiata pine....

...the beauty of them is that they’re cheap to establish, they’re reasonably reliable, they’re fast growing so they give you something reasonably quickly and they’re hardy. So they’re an obvious choice for massive plantings like that.
The value of shelter....

... it’s very hard to quantify the gains, I’m sure they’re there but there are so many other changes, we could say lamb survival now a days is so much better than it used to be but some improvement has come from other practices that we’ve put in place. 
...but if you can picture that part of the farm without them it would be pretty rugged in the winter. The bigger benefits we’ve had have been from the more recent, the big planting we did, 20 hectares in one year and David comments on the extra growth we get in the protection of those trees with crops and even with pasture too.
...and the guys who run the property live on it. The stockmen and David Button, just love them, they reckon they probably intercept more weather where they are than the original ones down the front. 
...the way the place is now, we don’t have to pick and choose where we lamb, we just set up the feed where ever we like.
...it has actually changed the land use basically.
...we now grow Lucerne on one of those west facing slopes on Cressy Road and probably, we wouldn’t be growing Lucerne there if it wasn’t for the shelter. But Lucerne is a crop that’s really sensitive to wind, I find, and it would certainly benefit now from the height of the trees along Powranna Road if one of those paddocks was suitable for Lucerne, but I don’t think they are, the pH is not quite right yet. But they would certainly benefit from the trees for growing a crop, a sensitive crop like Lucerne. 
...increased stocking rates are probably the biggest benefit.

Above: Stockyards and paddocks protected by the strategic and comprehensive shelter belt system on ‘Formosa’.
The value of good advice and assistance programs.....

I probably wouldn’t have done half of what I’ve done if that service wasn’t available. That’s a fact. We started on our own here and I had terrible strike rates with them and it’s almost heart breaking to do it that way. When the techniques came with these people who brought them to us, you know, ripping and mounding, and how to get bare earth because weed control is just so critical ...to be quite honest, it’s these people who come to us and say look there’s funding available for x, y and z, that’s what has driven us.

Well the first thing that comes to mind is the continued management. If Private Forests disappeared tomorrow I would be really struggling to manage those big plantings at ‘Formosa’ and there’s quite an investment there and it’s been done really well up to date. If advice wasn’t there, a lot of what we’ve done could end up not being nearly as effective as it should be or going to waste completely. Because you look at what we’ve done there, and the width of those shelter belts, is much more than we need for shelter so we’ve committed ourselves to producing something more than shelter.

Above: Over some 15 years a comprehensive system of shelterbelts has been developed on ‘Formosa’ using *P. radiata*. The property experiences ‘punishing’ winds from the Great Western Tiers and from the North West.
Choosing Radiata pine or other species...

I love growing natives personally more than pine trees. I’ve given you the reasons why we grow pine trees and they’re very valid reasons and they win over most of the time.

... but also, to do the very big job that we did, we were able to get terrific financial assistance to do it on such a big project which was brilliant.

...but, I like to see a mix too.

Above: The old and the new. With NRM support, the recent trend on ‘Formosa’ is to establish shelterbelts of native species.

...but there’s funding available for natives and there’s not funding available to put pines in at the moment, so it’s a good chance for me to get some of the stuff I want to do. And I think it’ll look great when they grow up, we’ll almost have, not quite, but we’ll almost have pines on one end of the farm and natives on the other. So we’ve got some pretty good plans for this year on top of what we did last year and that’ll all be natives.
How much wood can be grown.....?

Table 1:

<table>
<thead>
<tr>
<th>‘Formosa’</th>
<th>Year Established</th>
<th>Age (yrs)</th>
<th>Stocking (sph)</th>
<th>BA (m²)</th>
<th>Volume (m³/ha)</th>
<th>DBHOB (cm)</th>
<th>MDR (m)</th>
<th>MAI (m³/ha/yr)</th>
<th>Mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stand 1: Plot 1</td>
<td>1960</td>
<td>39</td>
<td>583</td>
<td>62.8</td>
<td>644</td>
<td>36.2</td>
<td>30.8</td>
<td>16.5</td>
<td>50%</td>
</tr>
<tr>
<td>Stand 2: Plot 1</td>
<td>1997</td>
<td>18</td>
<td>1039</td>
<td>51.0</td>
<td>341</td>
<td>24.7</td>
<td>20.0</td>
<td>18.9</td>
<td>28%</td>
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</table>

Table 1: Plot measurements from 2 stands of *Pinus radiata* on ‘Formosa’. One stand was harvested around 2000 and the other is currently 19 years old. Neither have/had been thinned.

Graph 1: Diameter distribution, per ha, of trees in unmanaged Stand 1: Plot 1 on ‘Formosa’ at age 39 years. Target mean DBHOB is 45cm.

Low rainfall (MAR=600mm), duplex, leached and bleached soils, cutting wind, winter frost and summer drought are factors all planted trees on ‘Formosa’ will encounter. These conditions impact on growth, form and mortality in unmanaged stands.

Plot data from stands of *Pinus radiata* on ‘Formosa’ suggest that it is possible to grow 500 to 600 m³/ha over some 35 years (at an MAI of around 16m³/ha/yr). Active silviculture, such as timely thinning and an appropriate fertilizer regime, could go a long way towards maximizing log quality, piece size, and hence, profitability.
How much wood is growing in the shelterbelts?

Table 2:

<table>
<thead>
<tr>
<th>Plot average (5 plots)</th>
<th>DBHOB (cm)</th>
<th>Height (m)</th>
<th>BA (m$^2$/ha)</th>
<th>Stocking (sph)</th>
<th>Wood volume (m$^3$/ha)</th>
<th>MAI (m$^3$/ha/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age = 15yrs</td>
<td>23.7</td>
<td>15.5</td>
<td>43</td>
<td>925</td>
<td>223.0</td>
<td>14.0 -16.6</td>
</tr>
</tbody>
</table>

PFT Agroforestry Project

Martin Moroni$^A$, Daniel Mendham$^B$, Thomas Baker$^C$, Mark Hunt$^C$, Dale Worledge$^B$, Rob Smith$^A$

$^A$ Private Forests Tasmania; $^B$ CSIRO; $^C$ University of Tasmania.

Private Forests Tasmania leads an Agroforestry project with CSIRO and UTas as partners.

The objective is to increase the extent of commercially orientated tree planting on farms.

“Agroforestry” is often used in a context where trees are included into landscapes for a combination of environmental benefits and agricultural production gains.

The planting of commercial species provides the opportunity to diversify farm enterprises and increase land manager income.

Opportunities exist to add forests to a variety of properties and significantly expand contributions to local economies.

PFT has supported the inclusion of trees on farms for decades. PFTs agroforestry project aims to measure and quantify some of the benefits of trees on farms in a Tasmanian context and provide tangible, economic measures that are expected to stimulate wider interest in, and uptake of agroforestry.

Data collection will be through experimental work replicated on four private properties to instrument and measure crop growth and environmental parameters relative to trees that provide shelter to crops primarily from wind.

Many landowners expressed interest in participating in the project, with resources limiting the project to 4 demonstration/experimental sites. All four properties have a strategic focus on farm shelter with multiple belts of radiata pine.
Properties participating in the PFT Agroforestry Project

Experimental field work will investigate changes in crop growth relative to established trees. At each property three transects with 6 measurement locations at 0.5, 1.5, 5, 8, 12 and 20 tree-heights from the shelter belt have been installed. Stock exclusion cages have been installed enabling pasture growth to be measured monthly. Air temperature and humidity, evaporation levels and soil moisture levels are also recorded at these locations to explain trends in pasture growth.

<table>
<thead>
<tr>
<th>Project Property</th>
<th>Landowner/Manager</th>
<th>Location</th>
<th>MAR</th>
<th>Farming Enterprises</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quamby Plains</td>
<td>Richard Archer</td>
<td>Hagley</td>
<td>720mm</td>
<td>Sheep and cattle</td>
</tr>
<tr>
<td>Formosa</td>
<td>John Heard</td>
<td>Cressy</td>
<td>600mm</td>
<td>Sheep and fodder crops</td>
</tr>
<tr>
<td>Woorak</td>
<td>Daniel Fish</td>
<td>Epping Forest</td>
<td>500mm</td>
<td>Sheep and fodder crops</td>
</tr>
<tr>
<td>Mt Vernon</td>
<td>Emma Boon/ Peter Downie</td>
<td>Kempton</td>
<td>500 mm</td>
<td>Sheep</td>
</tr>
</tbody>
</table>

Above: Weather Station recording a number of environmental factors, including wind speed and direction.
Single transect showing individual cages for collecting pasture growth data. Image taken from within growth plot for assessing wood production.

Above: Transects at ‘Formosa’ with pasture monitoring points flagged.
At each site a weather station is installed to record the prevailing wind direction and speed enabling the determination of periods when the pasture was and was not sheltered from winds.

Assessment of the wood production in each shelterbelt will be undertaken in order to complete the agroforestry picture.

These sites will provide a basis for future extension services for promotion and demonstration of the benefits of agroforestry to other landowners.

Expected effect of wind breaks (Nuberg et al. 2009)
Preliminary results from air temperature and humidity probes

Preliminary results demonstrate that air at ground level nearer the shelter was more humid and there were less cold periods and more warm periods which is generally good for crop growth. These results are consistent with Nuberg et al. (2009).

Graphs depict data recorded in July-September 2016. Recordings were taken every 30 minutes with the average temperature/humidity at each distance from shelter: n=3 and error bars are standard error.
‘Greenvale’

STOP 2

1381 Saundridge Road, Cressy 7302
Robbie Tole

Robbie Tole is fourth generation farmer at ‘Greenvale’.
About Greenvale

Greenvale Agriculture

Robbie and his wife, Eliza, are now the fourth generation farming Greenvale. Greenvale covers 560 ha with an average rainfall of 680mm per annum. The farm came from traditionally a 100% dryland, prime lamb operation. It is now a diversified farming business with an extensive cropping program and a small breeding flock of crossbred ewes which are run alongside a lamb trading operation. Around 12,000 lambs are turned off each year, of which approximately 2,000 are bred on the property. The farm is now 60% covered with fixed pivot irrigators, reducing the risks of dry seasons. Soil types range from very heavy black canola running up to lighter sandy loams. Some 300 ha of the property is under irrigation. Crops include Peas, Poppies, Potatoes, grass seed and clover seed.

Using technology to make the right choices

Over recent years, extensive development work has been put into practice. Technology has been implemented into the farming system to gain efficiencies in production and labour. Livestock handling equipment, variable rate irrigation (VRI), Fieldnet, RTK guidance NDVI images underground drainage and grid soil mapping have all been part of the farm development.

- “RTK is the 2cm tractor guidance we use for steering all our tractors so every time the tractor will come back to the exact path with in 2cm.”
- “Normalised Differential Vegetation Index (NDVI) is images we use to determine plant health and is what I import into our Variable rate irrigator programs to apply different water rates over the paddock. This allows me to individually control every nozzle on the pivot”.
- “All pivots are fully controlled from our smart phones with 3 on VR.”
- Underground drainage is now becoming a big investment for us to remove excess water in the winter but also reduce the damage from large rain events in the summer period.
- “The introduction of PA has been implemented over a decade but in recent years the adoption of VRI and NDVI has taken this to a new level. It dramatically altered the way we view our crop management and has opened up many opportunities to increase production but at the same time reduce inputs.”
- We have invested heavily in technology to reduce the physical labour required to process all the lambs to the point that very little physical handling is now done. All paddocks can be accessed from a laneway.
- “The operation now has a well-balanced irrigation system complementing the cropping and lamb production, allowing us to turn off lambs all year round.”
- “We manage the farm with 1 full time labour unit, plus .5 as a casual labour unit and myself.”

Growing Trees

Forestry
Planning is the key to success and is integral to the ‘what, where, why and how’ analysis. Robbie’s parents, Graeme and Kathleen Tole put pen to paper with a ‘Farm Forestry Plan’ early in 2001. The plan was to establish 59 ha of commercial plantations, of various species, over a 10 year period on a largely cleared landscape, with the following objectives:-

- Control woody weeds including gorse and hawthorn.
- Make productive use of non-productive land.
• Diversify, and create income from timber products.
• Stabilize soil and intercept water runoff on land upslope from a commercial limestone quarry.
• Provide livestock shade and shelter.
• Reduce evaporation from an irrigation dam.

Since taking over management of ‘Greenvale’, Robbie has continued to place high importance on the role of trees on the farm.

**Pine Trees**

32 ha has been planted with planting beginning in 1999, a second block in 2001, another in 2003 and the final block in 2006. The first thinning was 2011 on the first 2 blocks planted with a second thinning planned for early 2017 alongside a first thinning on the last 2 blocks planted. “The country that these trees were planted in was highly infested with gorse which greatly increased our costs. The whole area at some stage has been hand sprayed to control the gorse when trees were small. Pruning is also a very large cost but for us the clearing and ground prep with follow up weed control have contributed greatly to our costs. I have recorded $131,000 of costs to date, with $11,000 for income from thinning.”

In the beginning, there were rocky gorse covered banks.
Then came the sweat and substantial inputs of time and money in weed control, site preparation and establishment.

The hard work begins to yield fruit.
Table 3:

<table>
<thead>
<tr>
<th>Year Established</th>
<th>Age (yrs)</th>
<th>Stocking (sph)</th>
<th>BA (m²)</th>
<th>Volume (m³/ha)</th>
<th>DBHOB (cm)</th>
<th>MDH (m)</th>
<th>MAI (m³/ha/yr)</th>
<th>CAI (m³/ha)</th>
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<td>119.7</td>
<td>21.7</td>
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<td>588</td>
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<td>27.1</td>
<td>20.7</td>
<td>16.1</td>
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Summary information from 3 permanent sample plots over the past 6 years
The stand was commercially thinned at age 10 years.

Pine logs stockpiled adjacent to the quarry during the thinning operation.
Commercial thinning using a 5th row out-row system. On steeper areas, machines had to operate up and down hill.

*Pinus radiata* established in 2001 and commercially thinned in 2011.
Robbie has picked up the baton from his father. Trees and Forestry continue to have an important role on ‘Greenvale’.
‘Nosswick’

STOP 3 – including Lunch

157 Blackwood Creek Road, Blackwood Creek 7301
Scott and Andrew Colvin

Scott Colvin

Andrew Colvin
About Noswick

In the beginning...

We arrived here in 1981, the property at that stage was basically a bush block, six paddocks, no
improved pasture. There were no structures other than an old two stand wool shed and a set of cattle
yards made out of old logs. No running water, no electricity, no roads, - pioneering stuff I would say.
We arrived here with no stock and a little bit of machinery that we brought from the mainland and
then started buying stock.

Farming Life and Trees .... Coffee and a chat with Andy Colvin

“What I’ve been doing for the last 35 years is just spending money, it’s been
fantastic!”

We started at one end of the property, fencing, putting in crops and worked our way to the back of
the property. And that’s about how we’ve done it ever since. We originally ran Hereford cattle and
Polwarth for wool which is a very traditional agricultural operation back in the 80’s.

‘Times, they were a-changing’....making the right choices.

I remember about 1996, sitting at my office desk when wool was absolutely stuffed. I had kids at
boarding school and I thought, this is just not sustainable either economically or environmentally, for
that matter,... so we looked at putting in some irrigation because it was all the rage at the time. The
poppy industry was really expanding and there was an opportunity. So in 1997 we built our big dam,
in 1998 we brought our first pivot, and I remember getting this pivot and it was only a little four span
pivot and it cost me $60,000.

I looked at it and I thought, “gosh, how am I ever going to pay this off?” We paid it off and had cash
in the bank at the end of the first poppy crop. I thought this is too good to be true. We paid off the
dam and then two years later we brought another pivot and we did the same thing, we paid it off
quickly... We’ve just ordered our tenth pivot.

So we started irrigating and we were growing poppies and some grass seed and those two enterprises
have continued for the last 17 years. We now have peas in the rotation and a small area of beetroot
and carrot seed which is a bit of a fiddle. We have moved from a wool focus to our prime lamb
operation.

And trees...

Any circle neatly inside any square occupies 84% of the area so that the four corners of the square
we’ve tried to put down into trees and we’ve tried to link all those corners to other corners of other
circles so we have this mosaic effect of shelter belts through the property.

Our soil type here is a fairly shallow duplex soil which is really very poor, it’s not good cropping soil
but through good agronomy and careful management were able to do it quite successfully. From a
tree grower’s point of view, it is poorly drained in the winter and dries out terribly in the summer time.
Why establish trees on the farm...

The *E. nitens* we put in have ‘sort of’ been successful in that they have achieved all the aims that I originally set out which were:

- Aesthetics which is important to me, I want to have trees in the environment.
- I want to have habitat for birds.
- I want to try to reduce our perched water table in the winter time which has been successful.
- Shelter for livestock is critical, particularly for lambing ewes because we tend to lamb in September.

So, the timber production side of it was not my greatest aim. It is a sideline, and if after 20 years we make some money out of it, so be it... but it would immediately go back to trees.

I did not have a focus of making money when I planted the trees, now having said that, and bearing in mind our soil type, I’ve started to move away from putting in straight single species plantations of *E. nitens* and we’re moving to mixed species of native trees and the complete range of things right from the sedges to the low shrubs the tall trees.
Succession and handing over the reins...

Our son, Scott, went to the Northern Territory working on a cattle station for 12 months before studying at Sydney University where he graduated with an Honours Degree in Agricultural Economics. He then worked his way around the world and ended up on an organic carrot farm in Denmark, staff of 20 turning over 100 million euros a year. He did 8 months there and then worked as a commodities analyst for ‘Rabobank’ in London for 6 months. He then decided to come home.

Anybody can learn how to drench sheep and strain a fence, not everybody has the business acuteness that a degree in Agricultural Economics gives you. I see his management of our finances as being superior to when I was doing it.

Scott came home four years ago and as of July last year (15 months ago), he’s taken over the running of the property. He has lifted our productivity massively.

When I arrived the property was running 2,000 sheep. We’ll probably run 8,000 or 9,000 sheep this year, turning off approximately 6,000 lambs. So it has been a generational change for us, it has raised our productivity, and it has made us more economically and more environmentally sustainable. We have an ongoing program of putting in shelterbelts and trees.

So he’s bought back to the farm financial skills and I actually think it’s a good combination at the moment because whilst I’m physically slowing down, he’s got the braun and the brains, but I’m here to add a little bit of guidance and to give some advice... and I don't hand it out unless it’s asked for... but we have a very good relationship so we talk all the time.

Innovations in shelterbelt design

Going back to our pivots, we have been concerned for a long period of time with these big cleared areas, particularly our bigger circles which tend to be 40 ha’s, that it’s too big an area for lambing ewes, there’s not enough shelter so we’ve divided them in half. All our pivots are towable so there’s a tow path through the middle of the circle usually. We are now fencing off through the middle and putting three to four rows of low shrubs that won’t ever (hopefully) grow up high enough that the pivot can’t walk over it. We’re looking at things like Gahnia (cutting grass) and some of the smaller tea-trees and things like that. It may come that we have to do a bit of a pruning or something but it’s still in its initial stages. They have been in for about 4 years and the results are promising. The single biggest issue is to develop a fence that will keep the stock out but allow the pivot to walk over. We have tried all sorts of things, some of them get tangled up in the pivots and some of them allow the sheep to get through if you build them too light. We have tried electrifying them but where the wheels are you can’t have electricity so you put a bit of poly pipe over the wire, but then the sheep work out that they can get through where the poly pipe is.

This year we have finally developed a system that works well... And is stock proof! You’d think it would be a very simple thing to achieve, but it’s not. Lots of people have tried lots of things, some more successful than others, some of them more expensive than others, but the system that we’ve developed we think is as efficient financially and as practical as possible. We’re still doing little tweaky modifications to it but we’ve perfected it at last.
Native Forests...

We have two distinct different areas of native forest, we’ve got a rocky dolerite hill which is really dry sclerophyll and it’s made up mainly of *E. amygdalina* with some blackwood on the southern end. There’s a lot of *E. viminalis*. On the western face we have a conservation agreement, we can stock it and do anything to it really other than cut the trees down. We see it as a bit of an emergency grazing area because of the western slope, its native grasses, it’s quite thick bush in places and it’s a hard area to muster. We did put a fire through it for the first time in 30 years last year and it was a fire that I thought was going to be a small fire that turned into big fire. The court is still out for me as to whether it did more harm than good. It has germinated a huge number of wattles and quite a substantial number of what I think are *E. amygdalina*. We haven’t stocked it since then because of that, we wanted these trees to grow. I’m a little concerned about the percentage of wattle that’s come up, but to me it’s been a learning thing, I think we probably should have been burning it about once every five years instead of once every 25 years. Whether we would have got more wattle? Traditionally before I came it was heavily stocked with wethers just about all the time and the wethers kept the wattles down, of course we’ve changed the grazing management. I’m open to suggestions about how we manage the dry sclerophyll forest.

We also have a 40 ha block of wet sclerophyll forest which has all sorts of conservation values. It has a complete range of everything from the sedges right through to the very tall, old, mature *E. viminalis* and *E. ovata*, there’s a couple of Sassafras trees and things that are right out of area. As far as we know it has never been burnt or logged since white settlement. It was open to grazing until about 20 years ago. It has been fenced off and we’ve put a covenant over it. **My concern with it is the number of white gums that are dying.** Everything else is going alright but the white gums seem to just be on the way out.
My personal opinion is that it’s getting too hot for them. Too hot and too dry in the summer. That’s what I think, but I have no science behind to say it. My observation around the country side is that *E. viminalis* in northern Tasmania are under serious stress. I fence it out, I spray the gorse in it, and I leave it alone. I’ve heard Foresters say this is crazy, you need to burn it. **Well... I’m not going to be the man to burn it.**

**From Andy, a final word, or two...**

The one thing that I haven’t talked about is that we’ve got a colony of bandicoots, green and gold bell frogs, which are I think listed as endangered. We’ve got heaps of them, we’ve got bettongs, potoroo’s, wallabies, possums ...and possums are a big issue for us. Brush tail possums are a really big issue (in terms of browsing damage to crops and trees). So we’ve got quite a diverse range of animals. **From the trees right down to the sedges, the challenge for my generation and my son’s generation is how to manage and maintain it.** And how do we improve it and create the habitat for animals, but at the same time make the farm more profitable. It is a challenge, and we’re trying to do the best we can.

**The EcoAsh Era...Making the right choices at the time.**

At the time Andy Colvin, Malcolm Tilsley and other landowners were establishing *E. nitens* plantations, there was a buzz in the industry about producing solid wood products from plantation grown *E.nitens*. CSIRO, CRC Forestry, Forestry Tasmania etal were researching appropriate silviculture and assessing wood products from these plantations. FEA began sawing and drying young (<20 year old) *E.nitens*, and marketing it as ‘EcoAsh’ for appearance grade and structural timber. ‘EcoAsh’ type regimes were offered in more than one MIS prospectus.

So for landowners, what is the right choice, pulpwood or ‘EcoAsh’?

How should I manage my trees? Do I prune trees? Do I thin early?

PFT worked with Andy and Malcolm and several others, establishing fertilizer by thinning trials in an attempt to answer some of the management questions.

Discussion of these trials is to be continued... **On the Property of Malcolm Tilsley.**

Pruning *E.nitens* seemed a good idea at the time.
The right Choice... the ‘A’ Team. Barry Graue and the team from Devonfield Enterprises. Andrew and many other landowners have engaged the ‘A’ Team to plant trees on their properties over the past 4 years.
‘Tilsley Property’

126 Smith Road, Blackwood Creek 7301

Malcolm Tilsley

Ol’ mates relaxing on the porch
Relaxing on the Porch with Malcolm

Why would a city based GP buy a block in ‘the sticks’?

I first came up here after seeing an advertisement in the local paper. I drove up through the scrub and landed at this very spot and realised that you could see from Conara to Lilydale and all the mountains in between, the most magnificent vista across the Northern Midlands. I decided then that regardless of how the land was used, that I would purchase this place which was about 176 acres or there-about (68 ha) at that time which included a lot of native bush that went up the side of the Tiers, and some marginal farmland, a few dams and a lot of wildlife.

Well I’d grown up on the marginal areas of Launceston and spent a lot of time shooting and fishing up the North Esk River with people I went to school with. I’d sort of gone away from that, living in the city and busy with work, but I always wanted to find a place in the bush and actually own some bush. I’ve done a lot of bush walking over the years, but just wanted a retreat where there was a place to get away from work and the hectic life I lead outside of this place. I purchased the land in 2000 and I really had no idea at that time what I was going to do with it. …there was obviously scope for some limited forestry operations and also for turning the marginal farm land into plantation. So I sought advice about that.

Why forestry?…making the choice

One of the main things I gained out of the whole native forest harvesting operation was that I was provided (as part of the operation) with very good quality roads, which provided infrastructure for the land. That has enabled me to do other things with the land since.

I don’t have the time to look after animals or actively farm the land and people had advised me that the land was quite marginal in any case. There was a lot of enthusiasm for establishing plantations at that time. There was a very active woodchipping industry which was based largely on native forest at that time, allowing people capital to establish plantations. And there were lots of projections about how profitable those plantations might be. I guess I was swept up a little bit in that sentiment and thought that this would be a profitable way to use the land, and of course on reflection, there have been quite a few hiccups on the way.

I use the land now mainly for recreation. I have a busy medical practice so I try and get out here most weeks. I have finished pruning and other forestry activities so the timber is just growing at the moment. I have no reason to clearfall the plantation and I’m quite happy to keep the plantation thinned and growing vigorously… if into the future there is a commercial option of eventually clearfelling the plantation, I guess that will be left up to my children.

The property has a MAR of 1,000 mm on shaly infertile soil. It was passed over by one of the MIS Companies as being ‘fiddley’ and too small. There is some 52 ha of native forest, rough pasture and reserved area, with a net area of some 16 ha of E. nitens plantation (17,000 seedlings planted).

Malcolm has a very hands on approach to forestry on the property pruning some of the trees himself and engaged a number of helpers to complete the job. Approximately one third of the trees were pruned to 6.4m in 3 pruning lifts.
Pruning the trees...the right choice.

In 2006 when the trees were ripe for pruning, FEA were sawing *E. nitens* as young as 12 years old and marketing the wood as ‘EcoAsh’. The pruned *E. nitens* regime was ‘all the go’, appearing in the Prospectus of more than one MIS company. Forestry Tasmania, CRC Forestry and CSIRO were all researching the regimes for growing and processing solid wood products from fast grown eucalypts. Not surprisingly, a number of private landowners followed suit.

Thinning the Stand...a good choice.

With the stand under moisture stress, crowns lifting and the onset of self-thinning Malcolm, on advice, engaged AKS Forest Solutions Pty Ltd to commercially thin the plantation in 2014 in spite of the drop in stumpage to $5.00 per tonne at the time. Some 60 tonnes per ha were harvested, 928 tonnes in total.
Processing logs within the plantation – keeping nutrients where they will be of benefit.

Making the right choice. Malcolm in his *E. nitens* plantation in September 2016. The proof is in the outcome.
Silvicultural trials

In 2007 at the height of MIS with hardwood plantations being established across the State, and with landowners wishing to grow sawlogs from *E. nitens* plantations, alarm bells began to ring for Private Forests Tasmania (PFT) staff. Such plantations were established on low productivity sites down to a MAR of 550mm. There would be problems with moisture stress once the trees ‘took hold of the site’. Keeping trees alive until the stand could be harvested would be a challenge in itself. On better sites, what would be viable silvicultural regimes to produce solid wood products, whilst taking advantage of commercial thinning for lucrative pulpwood markets?

PFT set up 5 trial sites overlaying fertilizer by thinning treatments over 5 existing stands, (Malcolm’s being one, with a small trial being set up on the northern end). The focus was on diameter gains of final crop trees under various treatments. Stands were thinned after first lift pruning (approximately, at age 4 years) with the following outcomes:-

- There was no interaction between fertilizer application and thinning treatments.
- Fertilizer had no impact on diameter growth of pruned trees...other limiting factors are involved.
- Thinning had a significant impact (both 300 and 600 sph retained stockings).
Three sites were abandoned some 3 years after treatment due to high mortalities.

In 2016, mean DBHOB in plots at 300sph was around 7 cm greater than the mean DBHOB of all trees in the unthinned plots at Malcolm Tilsey’s property.

The unthinned plots carrying 100 m³/ha more than the 300sph plots, and 50 m³/ha more than the 600sph plots.

With the whole log export stumpage being around $2.00 per m³ more than the pulpwood stumpage, no economic analysis is necessary to conclude that the sawlog regime does not stack up (as at Sept 2016).

Thinning the stand from a health perspective appears sound as individual trees, subject to moisture stress, become susceptible to attack from pests and disease, leading to self-thinning (mortality).

Commercial thinning should also help the ‘bottom line’.

Do not attempt to grow *E. nitens* on unfavourable sites which are outside its limit of tolerance, particularly with respect to moisture availability.

Table 4:

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<th>Residual 300 sph</th>
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<td>DBHOB (cm)</td>
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<td>Vol (m³/ha)</td>
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Table 4: Summary information for 3 levels of thinning across 16 plots on Malcolm’s property, measured in 2016, at age 13 years

Future management …Malcolm’s Choice

- To thin the remaining plantation at some stage over the next 2-3 years to 50% of the current stocking.
- After thinning allow the trees to grow on.
- Malcolm does not plan on being around to clearfall the stand at final harvest.

Native Forest Works… Making the right choice

People have said to me that they thought initially, perhaps the block was selectively logged a bit too hard. But looking now at the results, and today we see very significant regrowth and photographs taken today, compared with those that we had taken before the logging operation, show very little difference, in fact, you would be hard pressed to see the difference even after just this short 14 year period. The selective logging was done in 2002.
The pictures tell it all. Malcolm thinned 34 ha of his *E. obliqua* forest in 2003. This helped fund plantation development and brought a new generation of trees into his native forest...a good choice.