TOUR 2

Australian Forest Growers National Conference
Launceston, Tasmania, 23 – 26 October 2016

Privately managed plantations and native forests

This Tour is proudly sponsored by:

AKS Forest Solutions Pty Ltd
AKS Forest Solutions Pty Ltd (AKS) is your local forest management and timber brokering company operating in private and public forests in Tasmania.

The core business of AKS is:

- Preparation of Forest Practice Plans for private property owners and major woodchip companies.
- Timber valuations on private property to give landowners a complete understanding of their holding’s value, be it native forest or plantation (hardwood, softwood).
- Advice on the best time to sell their products, based on market conditions and best available price.
- General forest management advice, such as the best species to plant and the return on investment to be expected.

Not only can AKS offer the best options available, AKS can also provide harvesting contractors to undertake the forest harvesting under its management.

Based around the best interests of the landowners and to ensure all parties are satisfied, AKS engages quality harvest and cartage contractors. AKS then markets the timber products to ensure the maximum price for the relative product is obtained for the landowner.

AKS is currently managing properties for landowners across the north, northeast and northwest of Tasmania. At present AKS is engaged in harvesting native forest, softwood and hardwood plantation wood.

Contact us:

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Acknowledgements

The contribution made by Ian Dickenson to host this field day on the family property, ‘Elverton’ is gratefully acknowledged.

This field day has been organised by Private Forests Tasmania, and Ian Dickenson.

We wish to thank AKS Forest Solutions Pty Ltd for sponsoring this tour and contributing to discussions throughout the day.

We would also like to thank Graham Barber for his support over a number of years, and kindly allowing us access to his sawmill.

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.
<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
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<tr>
<td>8:00 am</td>
<td>Assemble</td>
<td>Grand Chancellor</td>
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<td>Cimitere Street, Launceston</td>
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<td>8:15 am</td>
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<td>Cimitere Street, Launceston</td>
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<tr>
<td>9:00 am</td>
<td><strong>STOP 1</strong> Native forest forestry myths and</td>
<td>‘Elverton’</td>
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<td></td>
<td>misconceptions</td>
<td>101 Musselboro Road</td>
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<td>Blessington</td>
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<td>9:50 am</td>
<td>Depart Stop 1</td>
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<td>10:10 am</td>
<td><strong>STOP 2</strong> Property Management</td>
<td>‘Elverton’</td>
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<td>Yard/ Shearing Quarters</td>
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<td>10:40 am</td>
<td>Depart Stop 2</td>
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<td>10:55 am</td>
<td><strong>STOP 3</strong> Riparian management Revegetation</td>
<td>Musselboro Creek</td>
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<td>and Biodiversity</td>
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<td>11:25 am</td>
<td>Depart Stop 3</td>
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<tr>
<td>11:40 am</td>
<td><strong>STOP 4</strong> Eucalyptus rodwayii conservation</td>
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<td>11:50 am</td>
<td>Depart Stop 4</td>
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<td>12:00 pm</td>
<td><strong>STOP 5</strong> Ash Forest</td>
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<td>12:45 pm</td>
<td>Depart Stop 5</td>
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<tr>
<td>12:00 pm</td>
<td><strong>STOP 6</strong> Pine Harvests</td>
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<td>12:00 pm</td>
<td>LUNCH</td>
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<td>12:45 pm</td>
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<td>12:55 pm</td>
<td><strong>STOP 7</strong> Harvested Shelterbelts</td>
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<td>1:05 pm</td>
<td>Depart Stop 7</td>
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<tr>
<td>1:15 pm</td>
<td><strong>STOP 8</strong> Plantations - Conservation versus</td>
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<tr>
<td></td>
<td>production / conversion</td>
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<tr>
<td></td>
<td>Plantations – Pine and Eucalypt, Cypress</td>
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<tr>
<td>2:15 pm</td>
<td>Depart Stop 8</td>
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<td>2:30 pm</td>
<td>Depart</td>
<td>Yard</td>
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<tr>
<td>3:00 pm</td>
<td><strong>STOP 9</strong> Barbers Sawmill</td>
<td>57 Dowling Street, Launceston</td>
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<tr>
<td>4:00 pm</td>
<td>Depart</td>
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<tr>
<td>5:00 pm</td>
<td>Arrive</td>
<td>Hotel Grand Chancellor</td>
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<td>Cimitere Street, Launceston</td>
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Tour Overview

Tour Leader: Mr Arthur Lyons
Private Forests Tasmania
Phone: 0419 000 630
Email: arthur.lyons@pft.tas.gov.au

Experience one of the best diversified farm forestry properties in Tasmania. This property is an outstanding example of successful integration of forestry into agriculture and sustainable land management. Learn how 30 years of strategic decisions have paid their way for:

- Pinus radiata and cypress plantations managed for timber, shelter (and carbon).
- *E. nitens* plantations pruned and thinned for solid wood products.
- Native forests, managed and harvested for high value timber and conservation values

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‘Elverton’ and ‘Janefield’ Tour Map
‘Native Forest Management’

STOP 1

‘Elverton’ - 101 Musselboro Road, Blessington
Host: Mr Ian Dickenson (Owner / Manager)
Forest Statistics

Almost 50% of Tasmania’s land area is forested, with some 50.1% Tasmania’s total land area (3.41 million ha in 2013-2014) in reserves.
With a small area available for wood production, native forests accounted for 4.6% of the wood harvested in Tasmania in 2014 and 0.36% of the wood harvested in Australia.

Imported Forest products $4.6 billion
Exported Forest Products $2.5 billion
Trade deficit in Forest Products $2.1 billion
Australia is a net importer of Forest Products.
Of the imported products $314 million was the net import value of sawn softwood.

Australia’ Forests
Native Forests 122,600,000 ha (2015)
Plantation Estate 2,000,000 ha (2015)
Source: Australia’s forests at a glance 2015

Tasmania’s Forests (2013-2014)
Tasmania’s land mass 6,852,000 ha
Native forest 3,362,000 ha 49% of total land area
Plantation 368,132 ha
Private native forest 885,735 ha 26% of total Tasmanian native forest
Private forest ownership 1,113,432 ha 30% (combined native forest & plantation)
Total land area in reserves 3,414,000 ha 50.1% (at 2014)

Forest production (public and private land by volume)
Soft wood plantation 1,125,000 34%
Hardwood plantation 1,085,000 32%
Native forest 1,133,000 34%
Tasmanian contribution to national wood production 13.2% (volume) OR 12% ($)
Annual turnover $214 million
Direct employment 3,526 (in 2011) (> 6,000 prior to 2010)

In 2013-2014 the private forest estate contributed some 58.7% of Tasmania’s total harvested wood volume.

“Without markets for low grade material, commonly sold as woodchips, management of the forests cannot progress....the output from the private native forest estate has dropped to less than 5% (3.5% or 92,000 tonnes) of its 2000 peak of some 2.6 million tonnes.” (PFT Annual Report 2014-2015)

Source 1: ABARES: Australia’s forests at a glance 2015 (Data to 2013 – 2014)
Ian’s Goals - Native Forest Management

1. Maintain the area of native forest.
2. Increase the ‘multiple use’ value of the forests.

**Actions**

1. Where possible, influence government policy to ensure policy does not render our private native forests a liability with no economic value.
2. Structure the family business and succession plan to ensure our native forests are not adversely affected.
3. Ensure markets are available for all products produced in native forests.
4. Control / manage native and feral animals in order to minimize damage, particularly to forest regeneration and regrowth.
5. Minimize fire risk through sound forest management and by maintaining appropriate fire fighting equipment operated by well-trained staff.

**Silvicultural Systems - native forest**

Forests on ‘Elverton’ are largely described as ‘dry forests’.

Selective system is tailored to forest ‘type’, structure and condition.

For example:

- Areas of *E. delegatensis* with significant high quality regrowth – advanced regrowth retention, with retained basal area (BA) of 10 -12 m²/ha.
- Areas of *E. amygdalina* or *E. rodwayii* with few potential sawlogs– seed tree retention with a retained BA of 8-10m²/ha.
- As a rule of thumb, it is difficult to get eucalypt regeneration if the retained BA is > 12-15 m²/ha. A greater BA may be retained where there is a large component of advanced regrowth present.
Dry Forest Silvicultural Systems

Source: Managing Your Dry Forests, Private Forestry Council, 1994

Understanding Selective Logging

- Few potential sawlogs. Inadequate regeneration.
- Potential sawlog
- Small pulpwood tree
- Sawlog / Large pulpwood tree
- Adequate potential sawlogs.

SEED TREE RETENTION (or CLEARFELLING where this is appropriate).
REGROWTH RETENTION Regrowth retained and protected.
POTENTIAL SAWLOG RETENTION Potential sawlogs and any other regrowth retained and protected.

Areas requiring regeneration

Seedbed preparation
- Prelogging burn where appropriate.
- Mechanical disturbance during logging.
- Top disposal burning where appropriate.

Sowing
- Aerial or hand sowing as required.
Native Forest Myths and Misconceptions

The general public perceptions about native forestry are largely based on the following myths and misconceptions:

1. **Forestry operates as a law unto itself**

   *The Forest Practices system sits within the broader Tasmanian legislation and policy framework.*


   For example: Management of threatened flora and fauna species and inadequately reserved plant communities are covered by legislation and process that include:

   - Tasmanian Threatened Species Protection Act 1995.
   - Tasmanian Regional Forest Agreement 1997.
   - Any related or subsequent legislation (Forest Practices Code 2000, S.D3, page 64.)

2. **We should only be taking the sawlogs**

   Ever since European folk landed on these shores timber has been removed from forests for building. If this were to continue, eventually only the ‘rubbish’ is left – degrading the quality of timber available for future generations.

   Typically, after many years of sawlog harvesting, many forests have had a sawlog component of around 10% or less.

   The development of the pulp and paper industry has created markets for low grade timber not suitable for sawlog, creating regeneration with a greater component of sawlogs. Subsequent thinning may leave ‘advanced regrowth’ to grow on and improve the overall proportion of sawlog on the forest.

   *Forest harvesting needs to be undertaken with both forest regeneration and future forest composition in mind.*

3. **Putting Forests in Reserves = Forest Conservation**

   Living forests are a composite of interacting organisms which call them home. These interactions may be symbiotic, parasitic, antagonistic or neutral.

   Individual organisms and the forest itself have a ‘lifecycle’.

   For millions of years fire has been the agent of rebirth in our sclerophyll forests. (It is estimated that sclerophyll forests have existed for some 12 million years).
With an average fire frequency of one in 50 years, this amounts to some 20,000 fires over 1 million years...long before the first Tasmanians arrived.

Appropriate fire/ disturbance regimes are essential in maintaining species diversity and abundance in sclerophyll forests.

Sclerophyll forest species are not only adapted to survive fires but actively promote fire and many species depend on fire and disturbance in order to complete their lifecycles and maintain a presence in the forest.

Creating optimal burning regimes is quite complex. One size (fire frequency) does not suit all species. Within a dry forest some areas need to be burnt or disturbed more frequently than others, within a frequency range of every 3 to 50 years.

In Wet Sclerophyll forests the desirable fire frequency is more like every 100 to 200 years. Such fires are hot and ‘catastrophic’. Many mature wet sclerophyll forests have not seen a fire since the arrival of European Tasmanians. However, in the past million years these forests would have experienced some 5,000 catastrophic fires.

Only when forests have commercial value will there be motivation and resources to undertake such active forest conservation.... And only when forest management matches the ecological requirement for a particular forest type is effective conservation achieved.

4. **Forest Harvesting = Forest Destruction & Forest Fire = Forest Destruction**

Sclerophyll forests, *both wet and dry* rely on fire and disturbance in order to complete their ‘lifecycles’. Timely forest fires are either destructive or bring about rebirth, depending on one’s perspective. However, they are necessary for forest regeneration. Silvicultural harvesting systems, by their frequency and intensity, closely mimic the natural disturbance pattern. *Harvesting systems usually involve fire and do bring about forest regeneration.*

‘Google’ – “ecological burning”.

5. **We should stop clearfelling in forests**

Silvicultural systems are designed around the composition of the forest and its ecology. Wet forests are usually more even aged than drier forests and have resulted from a catastrophic fire event which created an ash bed for seed germination. *Clearfall, burn and sow regimes mimic the catastrophic fire event which is required to bring about forest regeneration.* Wet forests, as a rule, do not regenerate well from selective harvesting. Thinning may then be undertaken in ‘over stocked’ forest regeneration.
6. **Smoke from forest fires = pollution**

Sclerophyll forests have been burning for some 12 million years….long before man arrived.

We undertake controlled burns for 2 main reasons:

- Bring about regeneration
- Fuel reduction

Governments in NSW and Vic have created new national parks and largely removed controlled burning from forests since the 1970’s. High fuel loads building up in forests for some 30 years have created regional time bombs. Extreme environmental conditions and ignition points triggered catastrophic crown fires, causing devastating loss of life and property, and of an

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**Arthorpodium strictum** (Chocolate lily)

Tas Status: Rare (TSP Act 1995)

‘Mature plants are unlikely to be killed by fire & may regenerate from the tuberous root system. Occasional low density fires between 5 and 15 years may open the sward allowing habitat for the germination of new plants.’

(DPIWE: Threatened Flora of Tasmania Series)

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**Pimelea pauciflora** (poison rice flower)

Tas Status: Rare (TSP Act 1995)

‘Often associated with disturbed sites such as old snig tracks, landings, sawmill sites and roadsides’

(FPA Tas.: *Pimelea pauciflora* information sheet)
intensity not conducive rapid forest recovery. In 3 fire seasons, in Victoria, since 2000 over 3 million ha has been burnt out by wildfire...half the land area of Tasmania.

Whether we consider smoke from forest fire a pollutant or a natural part of our forest ecology, forests will burn. The questions are ‘when?’ and ‘How?’ In a controlled manner, at a time of our choosing; or as a wildfire when environmental conditions are at their worst?

7. Fuel reduction burning contributes to global warming

As a rule of thumb, dry forests accumulate around 0.5 to 1.0 t/ha/yr of fine dry fuel. When fine fuel loads exceed 10 t/ha the nature of fires tends to change from cool to hot and more intense. That is, change from a ground fire to a canopy fire.

_Cooler fires release less Carbon into the atmosphere, which is soon sequestered by the flush of forest regeneration (biomass)._  
_Hot fires, often uncontrolled, burn more fuel and larger fuels than cooler fires, releasing more Carbon into the atmosphere and require a much longer period for sequestration._

8. Old-growth forests can be preserved in Reserves

“Old-growth forests are ecologically mature forests that have been subject to little or no timber harvesting, roading or clearing”. ([http://adl.brs.gov.au/forestsaustralia/facts/conservation](http://adl.brs.gov.au/forestsaustralia/facts/conservation)).

‘Old-growth’ is not a forest type or forest community. It is a stage in the forest cycle, just as ‘infancy’ ‘adolescence’ and ‘old age’ are stages in the human lifecycle. We cannot ‘freeze-frame’ a forest’s lifecycle (...nor a human’s!). Disturbance events, natural or man-made may, however, prevent a climax community from being reached or simply contribute to the maintenance of the existing forest type /cycle.

In 2008 there was ‘200,000ha (of old-growth) less than that reported in 2003, due mainly to the impact of severe fires, with younger forests replacing old-growth forest...’ (Australia’s State of the Forests Report 2008).

_At a landscape level it is important to maintain a representation of all stages of the forest cycle. That is, various stages of both regrowth and old-growth.... allowing regrowth to become old-growth (...allowing youth to live to a ripe old age)._
‘Property Management’  

STOP 2  

‘Elverton’ - Shearing Quarters / Car Park

Ian Dickenson  
Ian Dickenson was awarded an AO in 1992 for services to agriculture and forestry.

- Principal of Elverton Pastoral Pty Ltd.
- Farmer and farm forester.
- Former Chairman of Private Forests Tasmania Board of Directors.
- Former Executive Member of the Forest and Forest Industry Council.
- Former Australian Government Representative on the Tasmanian NRM Committee.
- Vice Chair of Tamar Region NRM Management Committee.
- Life member of Tasmanian Farmers and Graziers Association (TFGA).
- Former Chairman of the TFGA Forestry Committee.
- Member of the TFGA Environment Policy Council.
- Former Chairman of the TFGA Property Management System Task Force.
- Winner of 1997 Tasmanian Primary Producer Landcare Award.
- Winner of 2000 Tasmanian World Forestry Day Award.
- Member of the Forest Industry Advisory Council advising the Australian Government.

‘Elverton’ is located 45 kilometres East of Launceston in the upper catchment of the North Esk River. This catchment provides a significant part of Launceston’s water supply via Tas Water’s Chimney.
Saddle facility. Farming and forestry are long established land-uses, there are large areas of native forests and plantations on private and public land.

Ian believes that developing a property management plan is one of the most important things a farmer can do.

Ian’s forestry philosophy is that having a timber resource in his mixed farming operation is an important risk management strategy. Managing forests is totally compatible with other farm activities and objectives. And it is only the trees that work for you 24 hours a day, 7 days a week, without supervision or negotiation!

An overview of ‘Elverton’ Pastoral Pty Ltd in 2016

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<tr>
<td><strong>Average Rainfall</strong></td>
<td>850 mm</td>
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<tr>
<td><strong>Elevation</strong></td>
<td>350 – 700 metres, most farming at 350 – 380 metres</td>
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<tr>
<td><strong>Total Area</strong></td>
<td>2,570 ha</td>
<td>100.0 %</td>
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<tr>
<td><strong>Total Agricultural Area (cropping/grazing)</strong></td>
<td>1,621 ha</td>
<td>63.1%</td>
</tr>
<tr>
<td><strong>Total Reserves</strong></td>
<td>412 ha</td>
<td>16.1%</td>
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<tr>
<td><strong>Total Forestry</strong></td>
<td>512 ha</td>
<td>19.8%</td>
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<tr>
<td><strong>Total Other (Infrastructure)</strong></td>
<td>25 ha</td>
<td>1%</td>
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**Native forest**

- **Native forest dedicated to timber** 359 ha 15% 14.0%

**Plantations**

- **P. radiata** 59 ha 2.3%
- **C. macrocarpa** 10 ha 0.4%
- **E. nitens** 53 ha 2.1% 4.8%

**Reserves**

- **Other native forest** 210 ha 8.2%
- **Native forest in reserves** 122 ha 4.8%
- **Stream side reserves and eagles nest** 80 ha 3.1% 16.1%

**Agriculture**

- **Dry land agriculture and grazing** 1,256 ha 48.8%
- **Irrigated land** 300 ha 11.7%

**Cropping**

- **Canning peas** 65 ha 2.6%
- **Grass seed production** 0 ha 0% 63.1%

**Other**

- **Roads, shelterbelts & infrastructure** 25 ha 1% 1.0%
**Beef Enterprise**

*Breeding herd* 960 head  
*Replacement heifer’s* 300 head  
*Fattening stock* 220 head  
*Bulls* 25 head  
**Total Beef Enterprise** 1,405 head

**Fat Lamb Enterprise**

*Breeding flock* 3,700 head  
*Lambs @ average 140%* 5,180 head  
*Rams* 45 head  
**Total Lamb Enterprise** 8,925 head

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**Environmental Issues**

Stream Management (along North Esk River, Burns Creek and Musselboro Creek).

- Fencing and stock control.
- Willow management-eradication and revegetation.
- Flood damage, risks and costs of riparian works.
- Gorse eradication.
- Ragwort eradication.

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**Soil Management**

- Objective is to not have soil exposed during winter.
- Cropping program is very conservative.
- Soil fertility is being improved over time.

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**Native Forest Management**

- Approximately 359 ha (15% of Elverton Pastoral land area) is allowed to be managed for long term timber production.
- A further 202 ha (8.1%) is high quality forest in reserves ie stream side reserves, eagles nest, landscape value.
- A further 210 ha (8%) of low quality native forest is retained mostly for aesthetic purposes.
- The native forest and plantation areas are Gazetted Private Timber Reserves.
Property Management Planning

Property management planning gives landholders an accurate overall picture of their property and management practices and where they should be heading to maximise their property’s potential in a sustainable way. While property management planning is most commonly undertaken by farmers, it is applicable to a wide range of property types, sizes and enterprises.

It is a process which supports good land management practices, ensuring minimal environmental impact and maximum outcomes from the use of our natural resources. It can identify for landholders where best to undertake natural resource management activities.

Aerial imagery and GPS surveying equipment is used to create detailed maps, showing a property’s infrastructure and natural resource assets. A team of experts then works with the landholder on specific issues relevant to their property, based around soil, water, natural resource management and agronomy and business management.

Technical input is provided on the property on a one-on-one basis, as well as in a group-training environment.

Financial incentives are offered to support landholders in the implementation of on-ground actions identified in their property management plan, to protect, enhance and manage natural values on their property.
Between 2000 and 2003 Private Forests Tasmania managed three Integrated Farm Forestry Projects with funding support from the Federal Government’s Natural Heritage Trust. These provided planning, part funding, technical and logistical support to landholders to implement “…innovative farm forestry projects that provide wood and non-wood benefit” on cleared agricultural land.

**Musselboro Creek riparian management and timber production corridor**

**Stream Management Issues**

North Esk River, Burns Creek and Musselboro Creek:

1. Fencing and stock control.
2. Willow management-eradication and revegetation.
3. Flood damage, risks and costs of riparian works.
4. Gorse eradication.
5. Ragwort eradication.

**Background**

- The creek is a Class 2 stream flowing into the North Esk River (supplies Launceston water).
- Site previously managed with a crop and grass rotation to stream edge.
- Soils are deep clay loams of moderate fertility with areas of impeded drainage.
- Rainfall 800-850mm.
- Only sparse/ narrow native vegetation remained prior to plantation.

**Project**

The majority of the 3km Musselboro Creek upstream of the confluence with the North Esk River was fenced in 2002 -2003. Funding assistance came from Natural Heritage Trust supported projects, i.e. TAMAR NRM and the Farm Forestry Devolved Grant. The aim being to:

- Fence to exclude livestock (limiting faecal contamination and bank erosion).
- Provide a buffer to the stream from agricultural run-off.
- Enhance riparian vegetation for stream stability.
- Initiate a Blackwood plantation to retain long-term, productive use of the riparian zone.

A ‘naturally nursed’ Blackwood (*Acacia melanoxylon*) plantation was initiated along with a floriculture plantation of native shrubs (landholder funded) on the southern portion of the creek.

- Blackwood planted greater than 10 metres from the stream is intended for future harvest.
- Fencing out stream bends yielded 6ha of sites and required 2.6km of fencing.
- Landholder costs exceeded $2 per $1 granted.
Management Issues:

Deer browsing, frost and grass competition have been major limiting factors to tree growth.
‘Eucalyptus rodwayii conservation area’ STOP 4

History

The area was ‘scrubbed out’ (clearfelled) approximately 90 years ago.

The 45 year old regrowth was thinned, with a small control area retained. Plots were measured in both thinned and unthinned areas with the results indicating that there were diameter gains in the thinned area.

The area is now in an informal reserve. Cattle are introduced for limited winter grazing.

_Eucalyptus rodwayii_ is an RFA community with conservation priority. It can be harvested but must be regenerated to that community.

Notes:
‘Ash Forest’

The area was harvested for sawlogs and pulpwood about 30 years ago. Seed trees and young regrowth were retained. Natural regeneration has occurred.

Notes:

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Two small woodlots of *P. radiata* were established in 1976 and 1977.

The 4 ha stand established in 1976 was thinned for fence posts to a stocking of approximately 650 sph.

Approximately 5,000 posts were treated and returned to the farm at about ‘break even’ on the financial calculator.

The remaining stand was clearfelled in 2010. Ian’s returns are in the table below:

<table>
<thead>
<tr>
<th>Product</th>
<th>Volume (as tonnes)</th>
<th>Stumpage ($)</th>
<th>Value ($)</th>
<th>Percentage of total volume (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cat 1 Sawlog</td>
<td>1,077.92</td>
<td>$40.00</td>
<td>$43,116.80</td>
<td>57.3</td>
</tr>
<tr>
<td>Koppers Logs (Posts)</td>
<td>372.22</td>
<td>$30.00</td>
<td>$11,166.60</td>
<td>20.0</td>
</tr>
<tr>
<td>Branxholm Sawmill</td>
<td>141.66</td>
<td>$7.50</td>
<td>$1,062.45</td>
<td>7.4</td>
</tr>
<tr>
<td>Pulpwood (Norske Skog)</td>
<td>287.65</td>
<td>$4.50</td>
<td>$1,294.43</td>
<td>15.3</td>
</tr>
<tr>
<td>Totals</td>
<td>1,879.45</td>
<td></td>
<td>$56,640.28</td>
<td></td>
</tr>
<tr>
<td>Per ha</td>
<td>469.86</td>
<td></td>
<td>$14,160.07</td>
<td></td>
</tr>
<tr>
<td>“Annualised” (per ha/year)</td>
<td>13.8</td>
<td></td>
<td>$416.47</td>
<td></td>
</tr>
</tbody>
</table>

Some 85% of the merchantable wood was recovered for solid wood products.

The other small woodlot was not thinned and is due to be harvested in the near future. It is stocked at over 1,400 sph, carrying 780 m³/ha and growing at an MAI of 21 m³/ha/yr. Trees have an MDH of 31m and mean DBHOB of 25.5 cm.

**LUNCH**
‘Recently harvested *E.nitens* shelterbelts’  

The 50m wide belts were planted in 1988 under an assistance scheme.

The value of the shelter was so high that Ian delayed harvesting until they were some 28 years old and beginning to self-thin.

Harvesting of *E.nitens* shelterbelts in September 2016.
Conservation versus Production

Ian Dickenson’s views (April 2010)

“Conservation versus production? This is a vexed question for any farmers. The average return on investment in agriculture is about 2%, very low compared to other investment opportunities. Add to this the uncertainties with respect to our markets and rainfall variations, not to mention the possibilities of climate change, it is little wonder the next generation is not falling over themselves to get involved in agriculture.

Further to this, Governments at all levels around Australia over the last decade have put in place legislation and regulation that restrict what farmers can do with their land. These restrictions effectively transfer the “asset” to the wider community and leave the liability with the title holder.

The main reason farmers have remained in business throughout decades of declining terms of trade has been a constant improvement in productivity. Much of the productivity gains have been by making our land more productive, in many cases, changing the land use i.e. grazing to pasture, dry land to irrigation, native vegetation to pasture, crops to plantations.

There is no argument that we need to manage our landscape sustainably and we need to strike a balance between conservation and production.

The most efficient way to achieve this is to ensure our conservation areas are valued highly by the wider community and land managers that are required to maintain these areas to provide environmental services to the community are recognised and rewarded appropriately.

Community attitudes are changing and the expectations on land managers to provide food and fibre that is safe, clean, green and affordable is increasing. This is becoming increasingly difficult.

Green House Gas Emissions from Agriculture and the Carbon Story

There is no doubt that there is much to learn about this issue. What we do know is that the current rules for measuring emissions are flawed. Many farmers want to know what the “benchmark” is for their business. Before this can be done, there needs to be an accepted measure of soil carbon and recognition for stored carbon and all vegetation growing on that farm.

Property Management Plans

Developing a property management plan (PMP), in my opinion, is one of the most important things a farmer can do.

There are many modules to a PMP, the physical map of the farm and various overlays can include; contour map, soil map, water courses, dams and watering points, infrastructure - including roads,
buildings, fences, stockyards, water pipes and troughs - contaminated sites, weed map, native vegetation map and plantations and shelterbelts. Other modules include succession plan, water development, detailed soils capability plans, detailed vegetation plan, fire plan, occupational health and safety plan, livestock production plan, cropping plan, marketing plan and education and training plan. PMP’s are voluntary and only modules that suit individual farms need be developed.”

The following paper was the basis for presentation by Ian Dickenson to: Productivity Commission, Australian Forest Growers National Farm Forestry Conference 2006 and National Biodiversity Conference 2007.

CONSERVE OR HARVEST?

Ian Dickenson, Private Forester, Tasmania

A comparison of native forest management options.

A 299 hectare parcel of predominantly forested land has the following land management options, the implications of which are detailed below. This study is based on real costs and returns of historical, current and proposed forestry and agricultural operations on part of a property in north-east Tasmania.

These operations are conducted according to the whole farm plan prepared for the whole of the property. The plantation and pasture development and retained native forest are integrated into the farm to meet environmental, landscape and agricultural objectives. This option increases the long term economic, social and environmental sustainability of the property.

Table 1 - Management Options

<table>
<thead>
<tr>
<th>Option</th>
<th>Activity</th>
<th>AREA (ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Set 205 ha of native forest for protection under Private Forest Reserve Program (CAR) and receive a one off negotiated payment.*</td>
<td>$61,500</td>
</tr>
<tr>
<td>2</td>
<td>Actively manage the native forest</td>
<td></td>
</tr>
<tr>
<td>2A</td>
<td>Harvest native forest and convert to plantations and pasture</td>
<td>205</td>
</tr>
<tr>
<td>2B</td>
<td>Establish and manage a 102 hectare hardwood and softwood plantation</td>
<td>102</td>
</tr>
<tr>
<td>2C</td>
<td>Establish 103 hectares of pasture</td>
<td>103</td>
</tr>
<tr>
<td>2D</td>
<td>Retain 71 hectares of native forest</td>
<td>71</td>
</tr>
</tbody>
</table>

* $300/ha is the target price understood to be established by the Private Forest Reserve Program.
OPTION 2A
Harvest 205 hectares of native forest

Table 2 – Mill door Price, Costs & Stumpage - Native Forest Harvesting

<table>
<thead>
<tr>
<th>Timber Sales</th>
<th>Volume</th>
<th>Roading, Compliance &amp; Management Fees* ($/t)</th>
<th>Harvest ($15/t &amp; $17/m³)</th>
<th>Transport $8.17/t</th>
<th>Processing (36/t &amp; 294/m³)</th>
<th>Stumpage ($13/t &amp; $26/m³)</th>
<th>Product Price</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Pulpwood</td>
<td>53,104</td>
<td>371,728</td>
<td>796,560</td>
<td>433,860</td>
<td>1,913,040</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sawlog</td>
<td>2,392</td>
<td>16,744</td>
<td>40,664</td>
<td>14,352</td>
<td>703,248</td>
</tr>
<tr>
<td>TOTAL</td>
<td>388,472</td>
<td>837,224</td>
<td>448,212</td>
<td>2,616,288</td>
<td>752,544</td>
<td>5,042,740</td>
<td></td>
</tr>
<tr>
<td>% Product Price</td>
<td>7.7%</td>
<td>16.6%</td>
<td>8.9%</td>
<td>51.9%</td>
<td>14.9%</td>
<td>100.0%</td>
<td></td>
</tr>
</tbody>
</table>

NB: Native forestry harvesting provides 10 man-years employment
* Includes planning, roading, industry fees & levies, and supervision
OPTION 2B
Establish and manage 102 hectares of hardwood & softwood plantations

Table 4 - Costs & Stumpage by Species
Costs, returns and income are estimated by the Farm Forestry Toolbox

<table>
<thead>
<tr>
<th>Species</th>
<th>Area (ha)</th>
<th>Establishment1 ($/ha)</th>
<th>Management2 ($/ha)</th>
<th>Stumpage3 ($/ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>E. nitens</em></td>
<td>50</td>
<td>1,745</td>
<td>2,100</td>
<td>16,800</td>
</tr>
<tr>
<td><em>P. radiata</em></td>
<td>42</td>
<td>1,645</td>
<td>2,100</td>
<td>20,200</td>
</tr>
<tr>
<td><em>C. macrocarpa</em></td>
<td>10</td>
<td>1,845</td>
<td>2,100</td>
<td>22,000</td>
</tr>
</tbody>
</table>

1. Variation in establishment costs is due to differences in plant costs.
2. Average pruning costs are $600/400sph and three pruning visits are required.
3. Assumes:
   a. $70/m3 royalty for *E. nitens* veneer logs and site productivity of 19 m3/ha/yr.
   b. Current royalties apply with a 10% premium for *C. macrocarpa*.
   c. All species are thinned at 12 years and harvested at 35 years.
   d. Plantations are managed to maximise clear-wood log production.

Table 5 - Stumpage by Species

<table>
<thead>
<tr>
<th>Species</th>
<th>Area (ha)</th>
<th>Stumpage ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Plantation Area</td>
<td>Clear-wood</td>
</tr>
<tr>
<td><em>E. nitens</em></td>
<td>50</td>
<td>605,500</td>
</tr>
<tr>
<td><em>P. radiata</em></td>
<td>42</td>
<td>565,000</td>
</tr>
<tr>
<td><em>C. macrocarpa</em></td>
<td>10</td>
<td>148,000</td>
</tr>
<tr>
<td>TOTAL</td>
<td>102</td>
<td>1,318,500</td>
</tr>
</tbody>
</table>
Table 6 - Total Costs, Employment & Product Value – Plantations

<table>
<thead>
<tr>
<th>Activity</th>
<th>Cost ($)</th>
<th>%</th>
<th>Employment (man-years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plantation establishment</td>
<td>174,790</td>
<td>2%</td>
<td>1</td>
</tr>
<tr>
<td>Management (pruning)</td>
<td>252,000</td>
<td>3%</td>
<td>1</td>
</tr>
<tr>
<td>Harvesting and transport</td>
<td>1,138,000</td>
<td>14%</td>
<td>8</td>
</tr>
<tr>
<td>Stumpage</td>
<td>1,483,210</td>
<td>18%</td>
<td></td>
</tr>
<tr>
<td>Export wood chips (fob)</td>
<td>2,515,201</td>
<td>31%</td>
<td></td>
</tr>
<tr>
<td>Primary manufacturing</td>
<td>5,577,000</td>
<td>69%</td>
<td></td>
</tr>
<tr>
<td>Gross Product Value</td>
<td>8,092,201</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

The average annual value of the gross product value is $231,200 per year over 35 years.

**OPTION 2C**

Establish 103 hectares of pasture with beef or lamb enterprise

Table 7 – Agricultural Costs, Returns & Employment

<table>
<thead>
<tr>
<th>Activity</th>
<th>Cost</th>
<th>Gross Return ($/year)</th>
<th>Employment (man-years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pasture establishment (Land preparation and sowing pasture)</td>
<td>$82,400</td>
<td>$60,000</td>
<td>0.5</td>
</tr>
<tr>
<td>Beef Production Value (farm gate)*</td>
<td></td>
<td></td>
<td>0.25</td>
</tr>
<tr>
<td>Fat lamb enterprise (farm gate)*</td>
<td></td>
<td>$126,000</td>
<td>0.25</td>
</tr>
</tbody>
</table>

* Beef and fat lamb enterprises are based on 32 year production.
  Fat Lamb production based on 17 DSE per hectare = 9.44 ewes X 130% lambing = 12/72 lambs per hectare X $100 per lamb.
  Beef production = 170 beef cows breeding say 150 calves worth $400 each.
OPTION 2D
Retain 71 ha of native forest

Table 8 - Environmental Services and Values

<table>
<thead>
<tr>
<th>Services</th>
<th>Value Range ($/ha/yr)</th>
<th>Assigned value ($/ha/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biodiversity</td>
<td>22</td>
<td>3</td>
</tr>
<tr>
<td>Salinity and water quality</td>
<td>10 – 85</td>
<td>10</td>
</tr>
<tr>
<td>Water table control</td>
<td>9</td>
<td>0</td>
</tr>
<tr>
<td>Landscape</td>
<td>8 – 23</td>
<td>8</td>
</tr>
<tr>
<td>Crop and livestock shelter</td>
<td>14 – 21</td>
<td>14</td>
</tr>
<tr>
<td>Fodder</td>
<td>3 – 10</td>
<td>3</td>
</tr>
<tr>
<td>Riparian Zone</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>Total - for plantation (102ha) and retained native forest (71 ha)</td>
<td>$7,000</td>
<td></td>
</tr>
</tbody>
</table>

Source: RIRDC Publication No 03/042. (Environmental services for plantations).

* The assigned values are estimates for this case study and are preliminary estimates and require confirmation. Carbon sequestration is excluded pending introduction of trading mechanisms.
**Conclusion**

Option 1 results in reservation of the native forest. The landowner receives a $61,500 one-off payment.

(If environmental services could be realised, the 205 hectares of forest has potential to provide environmental services to the estimated value of about $8,200 per year in perpetuity).

Option 2 provides increased farm income, agricultural diversification, substantial financial transactions in the agricultural and forest industries, adding value and export opportunities, employment and unrealised environmental services. These values flowing from the forest enterprise are shown below for the first 35 years.

| Table 9 - Forestry Enterprise - Landowner Costs & Returns and Value to Community & Industry Over 35 Years |
|--------------------------------------------------|---|---|---|---|
| Nominal Year | Cost | Stumpage | Community Value (employment & ES) | Processed Wood Product Value (ex saw/pulp mill) |
| 1-3 (native forest harvest & transport) | $1,285,436 | $752,544 | 10 man-years | $5,042,720 (export & domestic value) |
| 1-3 (Native forest roading and management) | $388,472 | | | |
| 3-5 (plantation establishment) | $174,790 | | 1 man-year | N/A |
| 5-9 (plantation management) | $252,000 | | 1 man-year | N/A |
| 35 (plantation harvests) | $1,138,000 | $1,910,000 | 8 man-years | $8,092,201 |
| **Total (to nearest $1,000)** | **$3,239,000** | **$2,663,000** | **20 man-years** | **$13,135,000** |
| 3-35 (beef production) | | $1,920,000 | 8 man-years | |
| 3-35 (fat lamb production)* | | $4,288,000 | | |
| 3–35 (environmental services)** | | ($245,000) | | |

* Could replace beef production  
** Environmental services are indicative and unrealised.

The native forest harvesting costs and returns are one-off, but the plantation and grazing enterprises are expected to be ongoing. Every 35 years the plantation enterprise would provide stumpages of about $1,910,000, about 10 man-years employment and over $13 million worth of manufactured wood products.
Eucalypt and Pine Plantations

Ian’s Goals

- Develop and maintain plantations on appropriate areas of the farm.
- Maximize shade and shelter for livestock.
- Improve the aesthetics of the properties and create a more pleasant work environment.

Ian’s Actions

- Apply appropriate silviculture (pruning and thinning) to maximize sawlog and veneer production.
- Minimize browsing and physical damage by native and feral animals.
- Control weeds.
- Minimize fire risk.

Plantations

Plantation Areas
There are some 112 ha of plantation in total.
The majority of these plantations are pruned for veneer and sawlog production.


Property Planning considerations

- Utilization of less productive land and steeper land, unsuitable for cropping/ploughing.
- Utilize a variety of species and regimes allowing access to a range of potential markets and spreads risk.
- Variety of age classes and variety in species mix allows staged harvesting and a staggered income stream.

Weed Management

- On-going program to eradicate gorse across whole property.

Wildlife Management

- *Deer*
Feral fallow deer cause significant damage to young trees and some crops. Unauthorised shooters ie poachers, are a constant problem too. Strategic deer proof fencing is an expensive necessity to establish trees.

- **Wallaby**
  Damage to plantation seedlings and native forest regeneration. Extent of pasture browsing significant but quantity unknown.

- **Possums**
  Brush Tail Possums cause damage to young plantation seedlings and canning pea crops. Retained paddock trees and native forest are havens for huge numbers of browsing game.

- **White cockatoos**
  Eat seed at sowing, numbers increasing each year. Also damage to branch tips and leaders on pine trees.

### Hardwood & Softwood Plantations from 2000

These consist largely of ex-forest sites which have been prepared by ripping and mounding. Early weed management and fertilizer application have also been required for successful plantation establishment.

Targets for the Permanent Forest Estate and access to forest certification are drivers for future plantation establishment to be carried out on cleared agricultural land.

#### Table 1 - Costs & Stumpage by Species
Costs, returns and income are estimated by the Farm Forestry Toolbox in ‘2006 dollars’

<table>
<thead>
<tr>
<th>Species</th>
<th>Area (ha)</th>
<th>Establishment1 ($/ha)</th>
<th>Management2 ($/ha)</th>
<th>Stumpage3 ($/ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>E. nitens</strong></td>
<td>50</td>
<td>1,745</td>
<td>2,500</td>
<td>16,800</td>
</tr>
<tr>
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<td>42</td>
<td>1,645</td>
<td>2,500</td>
<td>20,200</td>
</tr>
<tr>
<td><strong>C. macrocarpa</strong></td>
<td>10</td>
<td>1,845</td>
<td>2,500</td>
<td>22,000</td>
</tr>
</tbody>
</table>

Note:
1. Variation in establishment costs is due to differences in plant costs.
2. Average pruning costs were $600/400 sph (now around $800) and three pruning visits are required.
3. Assumes:
   a. $70 - $80/m3 royalty for *E. nitens* veneer logs and site productivity of 19 m3/ha/yr.
   b. Current royalties apply with a 10% premium for *C. macrocarpa*.
   c. All species are thinned at 12 - 15 years and harvested at around 30-35 years.
   d. Plantations are managed to maximise clear-wood log production.
Table 2 – estimated Stumpage (royalty/Return to Grower) by Species

<table>
<thead>
<tr>
<th>Species</th>
<th>Area (ha)</th>
<th>Stumpage ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Plantation Area</td>
<td>Clear-wood</td>
</tr>
<tr>
<td>E. nitens</td>
<td>50</td>
<td>605,500</td>
</tr>
<tr>
<td>P. radiata</td>
<td>42</td>
<td>565,000</td>
</tr>
<tr>
<td>C. macrocarpa</td>
<td>10</td>
<td>148,000</td>
</tr>
<tr>
<td>TOTAL</td>
<td>102</td>
<td>$1,318,500</td>
</tr>
</tbody>
</table>

Notes:
Plantation Map

Scale: 1:30,000
Spot 5 image April 2004

'Elverton', Farm Map
## Silvicultural Regimes & Productivity 2010

### Table 3 - Silvicultural regimes and plantation growth data (Plot assessments completed by PFT staff - May 2010)

<table>
<thead>
<tr>
<th>Species</th>
<th>Regime</th>
<th>Operations</th>
<th>Products</th>
<th>Age (yrs)</th>
<th>DBHOB (av in cm)</th>
<th>MDH (m)</th>
<th>BA (m²/ha)</th>
<th>Volume (m³/ha)</th>
<th>MAI (m³/ha/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>E. nitens</em></td>
<td>Pulpwood</td>
<td>Fertilizer +/- thinning</td>
<td>Pulpwood</td>
<td>22</td>
<td>22.2</td>
<td>28</td>
<td>39*</td>
<td>322*</td>
<td>14.8*</td>
</tr>
<tr>
<td><em>E. nitens</em></td>
<td>Clearwood</td>
<td>Fertilizer Pruning Thinning</td>
<td>Clearwood Pulpwood</td>
<td>9.5</td>
<td>13.5</td>
<td>16</td>
<td>21</td>
<td>110</td>
<td>11</td>
</tr>
<tr>
<td><em>Radiata pine</em></td>
<td>Clearwood</td>
<td>Fertilizer Pruning Thinning</td>
<td>Clearwood Knotty sawlog Pulpwood</td>
<td>9.5</td>
<td>18</td>
<td>12.9</td>
<td>36.3</td>
<td>156</td>
<td>16</td>
</tr>
<tr>
<td><em>Radiata pine</em></td>
<td>Knotty Sawlog</td>
<td>Fertilizer Thinning</td>
<td>Knotty sawlog Pulpwood</td>
<td>33</td>
<td>30</td>
<td>75</td>
<td>&gt;650</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td><em>Cypress - Experimental</em></td>
<td>Clearwood</td>
<td>Fertilizer Pruning Thinning</td>
<td>Clearwood Knotty sawlog</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*denotes standing live trees only

**DBHOB** = diameter measured at breast height (1.30m) over bark (cm)

**MDH** = mean dominant height (m)

**BA** = basal area (m²/ha)

**MAI** = mean annual increment (average growth rate in tonnes / m³ per ha per yr)

**sph** = stems per ha
Plantation management and Productivity 2016

In 2010 (at age 10 years) 40 ha of *E. nitens* was commercially thinned to 500 - 650 sph. *P. radiata* plantations planted around 2000 are due to be thinned in 2016. Outcomes from *E. nitens* thinning operation are summarized in the table below.

<table>
<thead>
<tr>
<th>Product</th>
<th>Volume (as tonnes)</th>
<th>Stumpage ($)</th>
<th>Value ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pulpwood</td>
<td>1742.6</td>
<td>$24</td>
<td>$41,822.40</td>
</tr>
<tr>
<td>Per ha</td>
<td>43.56</td>
<td>$24</td>
<td>$1045.60</td>
</tr>
</tbody>
</table>

Recent growth plot measurements for both pine and eucalypt plantations are summarized in the table below.

**Table:** Summary information for 16 year old *E. nitens* and *P. radiata* plots on ‘Elverton’

<table>
<thead>
<tr>
<th>Attribute</th>
<th><em>P. radiata</em></th>
<th><em>E. nitens</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>Year Established</td>
<td>2000</td>
<td>2000</td>
</tr>
<tr>
<td>Mean Dominant Height (m)</td>
<td>18.7</td>
<td>17.5</td>
</tr>
<tr>
<td>DBHOB (cm)</td>
<td>24.8</td>
<td>20.1</td>
</tr>
<tr>
<td>BA (m$^2$/ha)</td>
<td>56</td>
<td>18.7</td>
</tr>
<tr>
<td>Stocking (sph)</td>
<td>1,132</td>
<td>575</td>
</tr>
<tr>
<td>Vol (m$^3$/ha)</td>
<td>363</td>
<td>109</td>
</tr>
<tr>
<td>MAI (m$^3$/ha/yr)</td>
<td>22.7</td>
<td>6.9</td>
</tr>
</tbody>
</table>

**Plantation regime strategies**

A given site is capable of producing a certain volume of wood, determined by a number of physical, chemical and climatic site factors. This wood can by spread over a large number of stems or over a small number of larger stems.

**Pulpwood Regime:**
Aim to maximize the volume of wood produced in a given time. Maximum stocking to achieve log specifications (around 100mm SED processing limit). Initial stocking is typically 1,000 – 1,200 sph. Commercial thinning may be undertaken on productive sites.
Sawlog regime:
Logs are often grown to a target DBHOB, e.g. 45cm to 60cm. Processing equipment is geared to handle a certain range of log diameters. Sawlog regimes balance maximum volume output with desired log size.

Why thin?
Need to balance often competing factors, such as site occupancy and competition, branch size and diameter growth. Waste thinning, at an earlier age, is often required to release trees from competing neighbouring trees. Later commercial thinning, with an intermediate financial return, will improve basic economics. Commercial thinning generally uses a fifth out row method. Final crop stocking is generally 200 - 300 sph.

Why prune?
The aim of pruning is to produce knot-free high-value timber. Timing of pruning is dependent on tree diameter and tree height. Pruning is usually undertaken in three lifts to a final height of around 6.5m. Criteria for selecting final crop trees for pruning include tree form, tree vigor and distribution throughout the stand. Usually 300 - 400 sph are pruned. Pruning can be certified under Australian Forest Grower’s Pruned Stand Certification scheme.

Fertilizer?
Fertilizer application is dependent on soil fertility and nutrient availability. It is generally accepted that eucalypt response to fertilizer is most significant in the first 5 years. Radiata pine may also exhibit a response to later age fertilizer application.

Cypress Plantations
Cypress trees have been an integral part of the Tasmanian farm landscape since the first laneway and specimen plantings in the late 1800’s. These were mostly macrocarpa (Cupressus macrocarpa) with some lusitanica (Cypresses lusitanica) and various other cupressus species. The great size and spreading shape of many of these trees are features still seen today, but not always appreciated by farm managers having to cope with damaged fences and buildings at risk of tree collapse. For about 10 years Private Forests Tasmania investigated cypress species as an alternative to pines or eucalypts, because of their demonstrated capacity in New Zealand to produce valued timber products. The private plantation resource in NZ is in excess of 1,000 hectares of cypress, with an established market for high value pruned logs managed on 25-35 year rotations.
Cypress species produce high grade timber at an early age, enabling useful timber and post recovery from small logs. The heartwood is naturally durable for outdoor applications, while also widely utilised for a full range of joinery applications including flooring, window framing, doors and furniture. Large size boards are available from old unmanaged trees, often processed by portable mills on the farm.

A risk with cypress is they may be susceptible to cypress canker disease, a fungal infection which can have catastrophic results on macrocarpa, Lawson’s cypress and Leyland cypress. The variety of macrocarpa planted on Elverton in 2001 was rated as “canker resistant” but has been badly affected here and on many sites planted in Tasmania. Lusitanica is also planted here, unaffected by canker to date.

Prior to any new planting of cypress PFT recommends growers undertake their own research of new varieties, especially from the New Zealand Farm Forestry Association (www.nzffa.org.nz). The testing work continues, with a small quantity of seedlings grown from expensive NZ seed planted by PFT in 2009. These are a relatively new cross between C. torulosa x C. lusitanica.

New plantings of macrocarpa should be avoided for now.
Appendix 1

Water Management

A holistic approach to rehabilitating Rivers – North Esk at Elverton

Work on the North Esk River at Elverton has focused on a number of aspects of stream rehabilitation

- stabilising the stream bed and banks,
- stock management; and
- revegetation.

In the past, sections of the North Esk River have been straightened and along with the clearing of riparian vegetation and access by stock, significant erosion has resulted.

At ‘Elverton’, timber and rock treatments have been used to halt erosion of the streambed and banks. Timber has been used to protect the streambanks and a mixture of timber and rock used to reduce the stream gradient and thereby slow erosion of the streambed.

Channel straightening in the past has shortened the length of the stream which in turn increases stream energy and erosive forces. Carefully located rock riffles and timber structures slows the river down and attempts to restore the natural gradient. Timber is a useful tool in rehabilitating streams as it tends to absorb energy rather than deflect it and consequently has less of an impact on downstream areas. Historically, timber has been removed from stream channels as a flood mitigation strategy and this has contributed to erosion of the stream and loss of habitat for fish, bugs and platypus. By using timber for rehabilitation many of these problems can be reversed. This work will provide significant local benefits to river health as well as improving water quality across the broader catchment.

Whether using rock or timber for rehabilitation, it is important that careful planning and design is undertaken. Well designed and installed rock or timber structures should be able to stand the test of time and serve their intended function effectively.

Revegetation is a key part of stream rehabilitation.

Revegetation, using a range of different species, groundcovers, grasses, sedges, shrubs and trees will help stabilise the streambanks complementing the timber works. Over time the revegetated areas will provide habitat for birds and a wide range of native animals. The riparian vegetation will also improve water quality through shading the stream and reducing water temperatures and trapping nutrients and sediment before they can enter the stream.
Installing a timber for bank stabilization, rock riffle and revegetation
Appendix 2
Property Management Planning

Regional Outcomes on Farm for Sustainability (ROOFS)
Tamar Region

What is ROOFS

- ROOFS is a sustainable land management delivery model using existing and best practice tools to deliver increased profit and environmental outcomes across the landscape.
- The concept aims to provide a support system for sustainable agriculture and NRM which is focused on the property scale within the regional, state and national context. It is an initiative of Tamar NRM, Northern Tasmania.

Why develop ROOFS

- Desire to manage the resource-base as a long term asset and to address NRM issues.
- Increasing community/government regulation and regional planning expectations - land use uncertainty.
- Need for a proactive approach.
- Demand for a holistic approach to enhance sustainable agricultural practices and provide tools to satisfy regulatory and other requirements through:
  1. Land manager support mechanisms.
  2. Integrated NRM planning systems.

The ROOFS concept

- Overriding premise... Education and tools to change on-farm management are more effective and cost efficient for achieving lasting outcomes than grant based incentives undertaken in isolation.
- All parts of the ‘sustainable agriculture’ jigsaw exist or are being trialed across Australia, but as yet there is a lack of a logical framework for integrated delivery at the property scale - particularly in relation to translating regional catchment targets to the farm scale.
- A package of approaches is required in a multi-industry, multi-level and multi-landuse region, like the Tamar.
- Empowered managers must make and own their decisions based on business plans, not decisions driven by grants.
Key principles of the ROOFS approach

- Profitability is the driver
- Demand driven
- Science, research, R&D pathways
- Industry involvement
- Region-wide improvement - ‘innovators’ and ‘late adopters’
- Participatory adult learning
- Frameworks grass-roots driven
- Positive land manager / Government partnerships
- Modular design, value-added delivery, learning credits

ROOFS core elements

**Empowerment of Land Managers**

- Support for social, economic and environmental sustainability
- Methods to recognise the costs of managing public good (measurement and management)
- Support for succession planning
- Group processes
- Social sustainability indicators
- Farmer awards

**Dynamic knowledge exchange and transfer**

- Pathways and signposts to information
- Science and information updates
- Mechanisms for two way communication (landholder to region / industry/ government)
- Communication methods between Industry and growers
- Map of where to go for information

**Addressing needs of multiple stakeholders**

- Translation of the regional plan for landholders
- Address regulatory requirements
- Procedure for on-farm animal ethics policies
- ‘Good Neighbour’ principles
- Cultural Awareness

**Supporting Best Practice**

- Productivity Programs
• Information on new crops
• Information on farming impacts and codes of practice
• Methods to measure farming impacts
• Ecological criteria
• Collection of base line information
• Integration of strategic/ scientific and local knowledge

Voluntary environmental assurance system

• Branding / labelling emphasizing sustainability values
• Informed by regional priorities and targets
• Benchmark performance standards
• Performance process that demonstrates it is managing sustainability issues
• Incorporate food safety/QA issues
• Mechanisms the product alignment to market needs
• Endorsement by respected NGO’s or Government

Notes:
Established back in 1978, Barber’s has been providing quality Tasmanian Oak hardwood to the general public for over 35 years now. Our timber is suited to serve a wide range of applications, and can stand up to some of the harshest elements. Whether your current needs are commercial or residential in nature, don’t hesitate to speak with one of our friendly representatives today.

Barbers Sawmill is conveniently situated in the heart of Tasmania, but continues to offer unbeatable country mill prices. We stock a diverse range of green timber products, including pallet timber, building grade scantling and seasoning grade timber.

Oak hardwood fencing will stand the test of time. Speak with one of our professionals, and ask about some fence-building tips today.

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