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A successful local farm forester – Ross Henderson

Ross Henderson, a retired farmer, is a self-taught farm forester who successfully used trees to turn his run-down marginal farm into a productive farm, as well as converting unproductive scrubby land into high-return plantations. As well as all the work on his farm and tree plantations, Ross also took on full time employment and was involved in many forestry activities and organisations. He has gained many achievements in his farm forestry years.

The early years

After a 20-year career as a patrol officer in the Department of District Administration in Papua New Guinea, Ross returned to the North West, and in 1975 bought a run-down 80ha partial grazing property in Lower Wilmot. At the time the locals thought he was crazy, as the property was stony and exposed to cold, icy prevailing winds, and with half the property being unproductive with reverted scrub, bracken and blackberries. The farm was over-run by rabbits and other pests, and had a low stock-carrying capacity.
Establishing trees

Ross found out that the stony basalt-derived red soil had potential for growing commercial trees. In 1979 he cleared and planted two rough unproductive stony basalt knolls (about 1.2ha) with *Pinus radiata* in conventional spacing. He took the advice from the Private Forest Division (of the old Forestry Commission) to prune and thin the stand, for the production of high premium veneer logs and sawlogs, which he clearfelled in 2003.

Essential Oils production

Ross, being a man of innovation and a lateral thinker, set himself another challenge, to supply the domestic market with eucalypt essential oils. That same year, 1979, he planted 0.5ha of the scrubby land with the Victorian *Eucalyptus radiata* to produce plant material for a Victorian processor. With the determination for higher return, Ross decided to go all the way and he successfully built his own distilling plant, using a second-hand steam boiler. He had the intention to make the plant available to other growers. Unfortunately the difficulty with cloning *E. radiata*, coupled with the over-supply of global essential oils from China, led to this venture becoming unviable.

Agroforestry shelterbelts

Through the Forestry Commission Ross took up two pine development loans and planted 22ha over four years (1983 to 1986) to provide Ross with a continuity of forestry work over a 10-12 year period, in addition to his farm work. He used an agroforestry system developed in the late 1970s by the New Zealand Forest Research Institute, consisting of alternate belts of 3 rows of trees separated by 20m grazing bays. The tree belts provided shelter to the farm and stock, and increased pasture production in the 20m bays. At the end of the rotation the mature pruned trees will be part of his retirement superannuation.

Expansion of the plantation

In 1987, through the Eucalypt Research Development Scheme, Ross secured a grant to plant a 4ha Eucalypt Agroforestry Trial using several species (*E. nitens, E. obliqua, E. regnans, E. fastigata and E. fraxinoides*) with the same spacing pattern as the agroforestry *P. radiata*. Unfortunately only the *E. fraxinoides* showed potential, and the stand was clearfelled in 2004 for pulp then replanted with *E. nitens* in 2005.

The returns from trees

In 2003 the first 1.2ha Radiata pine (the two rocky knolls) were clearfelled, returning a nett $20,000 from the veneer logs, sawlogs, pullogs (photo below); and on-site milling. In 2004 commercial thinning was carried out in the joint venture stands of *E. nitens*, producing 105t/ha pullogs. During March/May 2009 the whole western half of the property was harvested, and the land was sold. The final volumes and returns will be available at the up-coming 30th Annual North West Farm Forestry Seminar/Dinner in Somerset on 10 August 2009.

The eastern half of the property (predominantly JV *E. nitens*) will be harvested in 8-10 years time, followed by the land sale. This will be the final top-up of Ross’ future retirement superannuation.

The many achievements

As a farmer and farm forester, Ross’ achievements include:

- Turning the marginal grazing farm into a highly productive farm; using trees to provide shelter for stock and increased pasture production.
- Converting the virtually unproductive scrubby
land into high premium tree plantations. The trees become his retirement superannuation.

• His innovative research saw his success in building his own Essential Oil distilling plant, using a second-hand boiler.

• The recipient of the 1985 Australian Forest Development Institute (AFDI, now Australian Forest Growers - AFG) Tasmanian Tree Farmer of the Year Award, a trip to New Zealand; and the 1988 AFG National Tree Farmer of the Year Award at the Albury AFDI Biennial Conference.

• 1991 foundation member and manager of the North West Treegrowers Co-operative, which led to the formation of two other similar Co-ops in the North East and South of the State.

• In 1993 Ross attained Forest Practices Officer (Planning) status.

• 1999 full time manager for Farmwood Tasmania Co-operative, the merger of the three Co-ops; with the main aim to manage and market the private wood resources of 430 members and other private treegrowers. Ross played the key role in pioneering export shipments to Korea, India and China.

• Ross graduated in 1996 with a Certificate in Forest Science through Melbourne University.

• Active member of the Tasmanian Branch of Australian Forest Growers organisation. Ross was the Chairman of the Marketing Committee of the AFG National Council, representing Tasmania from 1992 to 2004. He was elected twice as AFG Vice-President. He continued his service as a director on the National AFG Board until his retirement in 2005.

• In 2006, the Chairman and CEO of Private Forestry Tasmania made a presentation to Ross in “Recognition of Your Sustained Support For Private Forestry” at the 27th Annual North West Farm Forestry Group seminar/dinner in Somerset.

• Recognition of his farm forestry achievements and outstanding service to AFG ultimately won Ross the AFG Honorary Life Membership at the 2007 AFG Biennial Conference in Launceston, in which Ross was heavily involved in the conference organising team.

• Amidst the very busy farming and forestry activities, and the family upbringing; Ross even had enough spare time for his favourite hobby/sport. He won several State sailing championships, on the boats he built himself (including an impressive 27 foot King Billy pine catamaran).

**Acknowledgements:** The author wishes to thank Ross personally for his historical recollections. Also thanks to Christina Staderman of AFG for providing several articles from past issues of the AFG magazine.

**Henry Chan**
Private Forest Advisor, North West
Forests and wind risk

Historically Tasmania has not been subjected to a lot of catastrophic forest windthrow; however, in particular the recent trends of expanding the geographical limits of plantation development into previously undeveloped topographies means that the forest wind risk must not be underestimated.

If forests are not assessed for wind risk as part of the strategic forest planning process and appropriate management regimes implemented, the establishment and management of forests, plantation and native, can be severely affected by windthrow and breakage that could result in commercial failure.

Wind risk within forests is dependent upon the interaction of a number of individual factors, including the windthrow, forest stand and treatment hazards. The importance of which will vary from place to place and time to time.

Forest wind risk is determined by windthrow, forest stand and treatments hazards

The forest wind risk indicates the likelihood of forests being damaged by winds and trees suffering from windthrow and/or breakage.

Forest wind risk is the combination of the windthrow hazard, forest stand hazard and the treatment hazard. It can be used to plan operations in existing forests, and also to design and plan future forests, for example: the strategic positioning of shelterbelts.

Private Forests Tasmania is producing a guide for foresters, landowners and planners to introduce them to:

- the concepts of forest wind risk
- a method of determining the level of wind risk for an individual operation, a single coupe, a whole forest or an entire property
- a planning framework for wind risk
- windthrow management strategies to reduce forest wind risk.

If you require further information or wish to contribute to this important subject, please contact Rob Smith at Private Forests Tasmania.

Further reading:


Continued development of the forest industry over the past 10 years has seen both individual landowners and industry groups extend the boundaries of plantation forestry into more marginal areas. Such sites are limited by rainfall and several site factors such as soil nutrition, soil texture and the soil profile. In Tasmania the most commonly planted species are *Pinus radiata* (radiata pine) and *Eucalyptus nitens* (shining gum). Radiata pine will tolerate a wide range of site conditions, including lower fertility and rainfall to 600mm per year. *E. Nitens* is identified as having a requirement for soils of higher nutritional status and a rainfall usually greater than 800mm per year in Tasmania.

When planted on sites outside its preferred range, *E. nitens* may perform relatively well until its demand for moisture outstrips supply, often around age 5 to 7 years. There is much evidence of *E. nitens* exhibiting growth checks and physical symptoms of drought stress when planted at densities of more than 1000 stems per ha (sph) on such sites.

Historically, silvicultural regimes have been developed for sites of higher productivity where high stocking levels can be maintained until trees reach merchantable size or volume, when commercial thinning is undertaken. On less-productive sites, demand for resources may outstrip supply well before trees become merchantable. From a silvicultural perspective, there is need for investigation into more appropriate thinning and fertilising regimes on sites of lower productivity for both radiata pine and *E. nitens*.

An emerging complicating factor is the potential impact of climate change. Across north eastern Tasmania annual rainfall over the past 10 years has been below the long term average. For example, the long term average for Cressy is around 624mm, yet since 2000 the average has been around 490 (see fig 1). In the rainfall data collected for this project, a similar pattern exists across a number of areas in the northeast.

PFT identified several key questions fundamental to plantation development on sites limited by moisture, nutrient availability and soil physical properties.

- Are highly stocked (>1000 stems per ha) short term rotations of *E. nitens* viable across a range of sites of varying productivity?
- Would early waste thinning of stands delay moisture stress in *E. nitens* and for how long?
- If gains are achieved by early thinning would they be carried through the period of the plantation rotation?
- Predictive models for plantation growth are less than reliable for lower rainfall zones. Can data be collected to better predict site productivity?
- Can plantation thinnings be better utilised, and will this benefit the bottom line?
- What are the maximum growth rates achievable for radiata pine and *E. nitens* on more marginal sites if nutrients are not limiting?
- Can future checks in growth and form due to nutrient deficiencies be prevented by assessing nutritional needs on a site-by-site or soil type-by-soil type basis?
- Is there an interaction between early thinning and additional fertiliser application?
- What are some implications for plantation development in light of the possible impacts of global warming?

PFT has worked cooperatively with landowners who have established radiata pine or *E. nitens* in order to establish some basic early thinning and fertiliser trials which will provide answers. Treatments include full stocking (approx 1000 sph), intermediate early thinning at first pruning lift (to 500-600 sph) and early thinning to approximate final crop stocking (approximately 300 sph). Each thinning treatment was overlaid with two fertiliser treatments (additional fertiliser and no additional fertiliser). In some cases two levels of additional fertiliser were applied. The focus is on growing *E. nitens* for both solid wood and pulpwood products.

![Fig1: Cressy Annual Rainfall Data Since 2000](image-url)
Consultants, Soil Professionals, were engaged to assist with soil descriptions. For assessments of radiate pine nutrient status Forestry Tasmania has assisted with analysis of foliar samples and interpretation of the results.

Sites from low to high productivity were selected for *E. nitens* and *P. radiata* plantations, and trials commenced in 2007.

<table>
<thead>
<tr>
<th>Site</th>
<th>Species</th>
<th>Productivity class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cressy</td>
<td><em>E. nitens</em></td>
<td>Low</td>
</tr>
<tr>
<td>Poatina</td>
<td><em>E. nitens</em></td>
<td>Moderate</td>
</tr>
<tr>
<td>Blackwood Creek1</td>
<td><em>E. nitens</em></td>
<td>Moderate</td>
</tr>
<tr>
<td>Blackwood Creek2</td>
<td><em>E. nitens</em></td>
<td>High</td>
</tr>
<tr>
<td>Rosevale</td>
<td><em>E. nitens</em></td>
<td>Moderate – high</td>
</tr>
<tr>
<td>Longford</td>
<td><em>P. radiata</em></td>
<td>Low</td>
</tr>
<tr>
<td>Hadspen</td>
<td><em>P. radiata</em></td>
<td>Low-moderate</td>
</tr>
<tr>
<td>Carrick 1</td>
<td><em>P. radiata</em></td>
<td>Moderate</td>
</tr>
<tr>
<td>Rosevale</td>
<td><em>P. radiata</em></td>
<td>Moderate-high</td>
</tr>
</tbody>
</table>

Table 1: Trial sites

Data from the first year after treatment has just been collected for statistical analysis. Even so, it can be already seen that:

- Severe moisture stress was evident on two of the low productivity sites. In an 8 year old *E. nitens* stand, some 30% - 50% of trees in unthinned plots (1000 sph) had died in the year since the trial was established. Survival rates in thinned plots were 90% - 100%.

- Of the remaining *E. nitens* trees some 30% exhibited possible stress-related infestations of wood boring insect larvae. A significant number of trees in thinned plots were also affected by wood borers.

- There is every possibility that unthinned trees in younger stands will suffer a similar fate in the coming seasons, as demand for moisture increases, and especially if rainfall patterns continue.

- On productive sites, trees thinned to 300 sph already appear to exhibit diameter gains over pruned unthinned trees.

- Some areas have had annual rainfalls more than 10% below the long term average since 2000. This could well impact on species - site interaction, particularly when species are planted at the margins of their climatic limits.

These trials established by PFT, in co operation with landowners, over the past 2 years will generate valuable information to assist decision-making in plantation development and management.

David Bower
Private Forests Advisor
Best management practices – we can prove it!

In Australian over 7.8M hectares, or about 8% of all private and public native forests and plantations, which are managed for wood production, are now certified as sustainably managed to meet economic, social environmental and cultural criteria under the Australian Forest Certification Scheme Standard (AFCS) which includes the Australian Forestry Standard AS4708. This standard is internationally recognized.

Wood growers/processors; Gunns Limited, Forest Enterprises Australia Limited as well as Forestry Tasmania and Timberlands Pacific Pty Ltd all have obtained AFS certification for over 1.8M hectares of forests/plantation. Over 50% of the native forests/plantations managed for wood production in Tasmania are now certified.

Consumers who buy wood products labeled with the AFS TradeMark logo now know the trees are from sustainably managed forests/plantations. This is important in a world where many natural resources are in decline, illegally harvested or poorly managed with little consideration for future generations. The TradeMark label states; “Our forest management system undergoes continuous and rigorous independent audits against a world-class Australian Standard for environmental sustainable Forest Management – and we can prove it”.

The AFCS also includes a Chain of Custody Standard AS4707 to track wood from certified forests through the supply chain to the customer. Here customers are guaranteed at least 70% of wood is from certified forests and up to 30% from legally harvested forests.

Private forest growers who sell wood to the above wood processors do not need to have their forests independently certified if the wood buyer applies for the Forest Practices Plan. Here, private forests are deemed to meet certification requirements as the harvesting and reforestation comply with the States’ Forest Practices System. Wood processors may also take deliveries of small amounts of un-certified wood. Individual private forest owners receive no price premium for certified wood. Private growers may consider certification if they wish to sell logs either overseas or to new wood processors who establish processing plants in the State.

Certification is an exacting process with regular independent audits to ensure forest owners/managers comply with the stringent requirements of AFS.

The cost of certification, especially the initial set up cost, is expensive. To address this, the National Association of Forest Industries with assistance of Private Forests Tasmania has, over the last year, developed a manual to assist groups of forest owners share the cost of certification. PFT prepared detailed costings for a group of 10 like-minded forest owners to obtain certification over three years. The initial cost to establish the group policy, procedures and plans for forest management & harvesting, fire prevention and OH&S as well as community consultation and monitoring, compliance and reporting systems would cost about $100,000 in the first year. Over the first three years, the annual average cost to each member to run the ‘certification business’ is about $5,300 and over say 9 years $3,200.

For more information, see www.forestrystandard.org.au or contact Private Forests Tasmania.

Arthur Lyons
Regional Forester