MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
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MBIE SPOTLIGHT PAPER

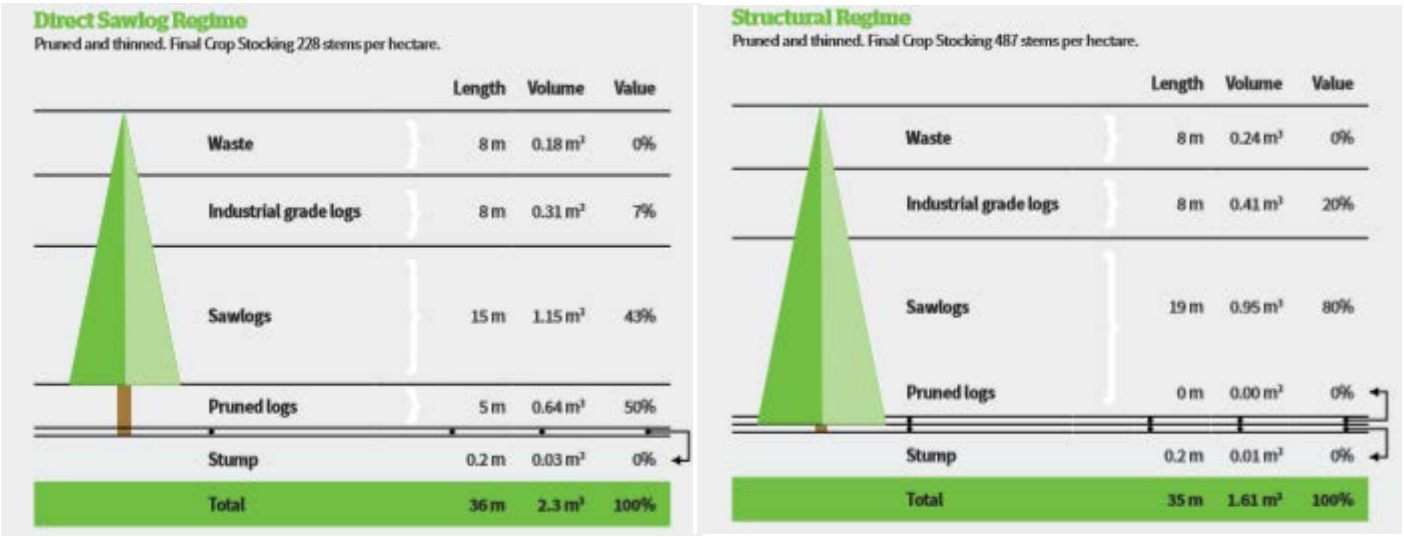
Forest Economic Advisors LLC ("FEA"), a US-based forestry consulting company with offices in four countries, has been engaged by the Ministry of Business Innovation and Employment ("MBIE") to provide an overview paper on the NZ forestry and forest products sector including a series of brief Spotlight Papers targeting a key theme. The theme of this Spotlight Paper is…

The looming impact of diminishing pruned log supply on regional economic development in the Central North Island.

1.0 Introduction

New Zealand's commercial forestry operation is dominated by plantation-grown, exotic Radiata pine which totals 90% of the net stocked forest area. Historically, Radiata pine forests are grown as either a pruned (direct sawlog) or structural regime as shown in Figure 1.

Figure 1. Typical sawlog out-turn for pruned and structural regimes



Source: Forest Owners Association Facts & Figures 2016 Booklet (pg 21) from www.nzfoa.org.nz

The pruned log is sawn into wide, clear, boards that differentiate Radiata pine as a premium wood product in the US clearwood market for millwork, windows and doors as well as the DIY market for the likes of Home Depot and Lowes. It is also used for "clearwood" applications in selective markets including China, Japan and Europe. This as opposed to the much more commodity-based structural and industrial type sawn products that are generated from the structural sawlog regime. The implication has been that, despite New Zealand having a near monoculture in terms of tree species, these different forest-growing regimes have allowed NZ to differentiate its sawn timber output into significantly different market segments.

It is pertinent to note a few factors around pruning (refer to Figure 1):

- The final stocking level is less than half for pruned forests as for structural forests (indicatively shown as 228 stems/hectare versus 487 stems/hectare respectively).
- This reduction in total number of tree stems per hectare for pruned forests is NOT fully compensated for by the increase in timber volume per stem (indicatively shown as 2.3m^3 and 1.6m^3 for pruned and structural forests respectively). Structural sawlog regimes have about 50% more timber volume per hectare.
- Pruning incurs additional costs to send in pruning crews for 2-3 "lifts" before age 12 to delimb the lower log. This cost then gets amortised over the remaining life of the tree and needs to be recovered in the sale price.
- The 5m pruned log represents about 28% of the timber volume from a pruned tree stem but accounts for 50% of the value. This is necessary, as seen above, to compensate the additional cost of pruning and the lower overall timber volume.

2.0 Diminishing pruned log resource in the Central North Island

The forested area of the Central North Island ("CNI") is around 550,000 hectares and much of the historic harvest has been based on the direct sawlog regime that yields pruned logs.

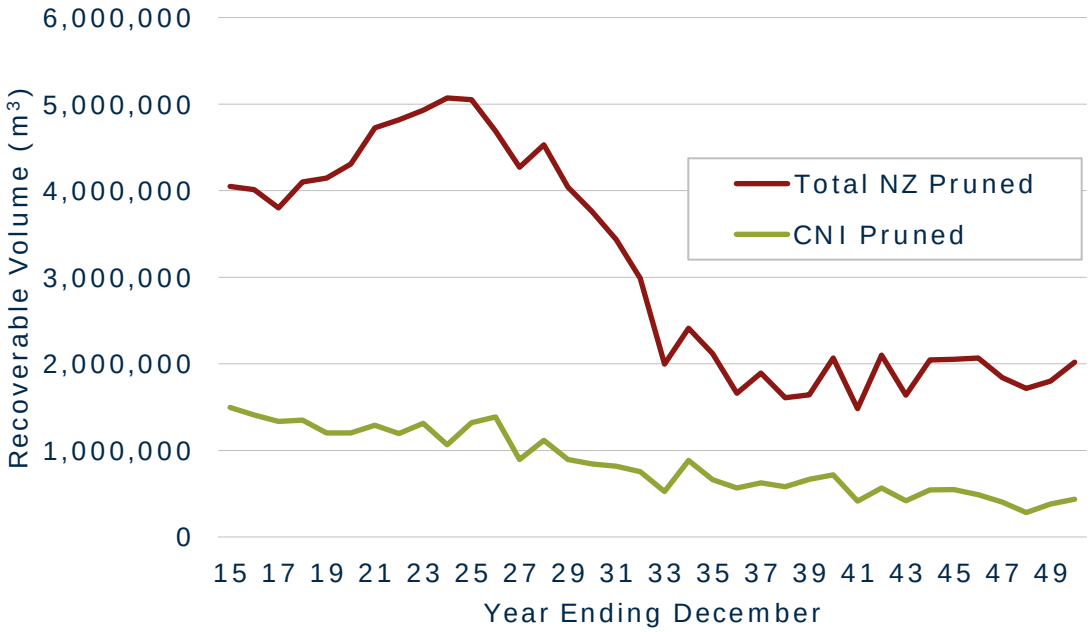
However, in 1996, Carter Holt Harvey ("CHH") moved to its so-called "Millennium" regime which eliminated ongoing establishment of pruned forests and focussed on higher-volume, lower-rotation structural sawlogs with no pruning costs to carry. The rationale was that technology advancements would see more of this knotty, structural wood being used in engineered wood products and sawing advancements may mean clear boards could still be sawn from the log and/or fingerjointing technologies would become so sophisticated that the jointing would become almost unnoticeable. The last pruned forests established at the time are now being managed to depletion by Hancock Forest Management (NZ) Ltd who purchased these forest assets when CHH chose to disaggregate its business model in 2006.

In the last three years, Kaingaroa Timberlands ("KT"), who manage the massive 175,000 hectare Kaingaroa Forest in the CNI have also announced they will stop pruning. This means a significant dent in the available pruned log supply in about 20 years. KT have stated that they need an additional premium of about US$35-40/tonne for a pruned log in order justify continued pruning versus a structural regime. In KT's view, the necessary premium differential between an A-grade type log and a pruned log has rarely occurred so it is just economic sense to move to a more profitable operating model.

The net impact of these moves by CHH and KT can be seen through the wood availability forecast modelling done by the Ministry of Primary Industries[1]. This involves canvassing all forest owners across New Zealand about their intentions going forward including level of harvest, average rotation age, mix of forestry regime i.e. pruned versus structural etc. This information is used to model a range of scenarios. Figure 2 shows the data provided for pruned log harvesting under one of these scenarios for both New Zealand and the CNI out to 2050. Key observations are:

- Nationally, there is a peak of around 5 million m^3 in 2024, declining to around 2 million m^3 in the early 2030s.
- For the CNI the situation is quite different in that there is no peak, and volumes are now in decline. Current harvest levels in 2017 of about 1.3 million m^3 decrease to around 0.4 million m^3 by 2050 – a drop of 70% from today's wood availability!

Figure 2. Pruned wood availability forecast for New Zealand and the CNI to 2050



Source: New Zealand Ministry of Primary Industries "Wood availability forecasts" at http://www.mpi.govt.nz/news-and-resources/open-data-and-forecasting/forestry/new-zealands-forests/

[1] http://www.mpi.govt.nz/news-and-resources/open-data-and-forecasting/forestry/new-zealands-forests/

3.0 Implications for pruned log sawmills in the Central North Island

In 2017, Tombleson[2] identified that the CNI contains 12 mills that process pruned logs and that most of these are designed to process exclusively pruned logs with just a few also processing structural logs. A survey of these mills concluded that collectively they:

- Process 1.226 million m^3 of pruned logs (close to the MPI harvest level of 1.3 million m^3)
- Employ 1,575 staff
- Have an annual turnover of $734 million (about the size of the NZ apple export market)

FEA has had reports from some of these CNI mills they are already starting to see some shortages of pruned logs although not yet to the extent where a mill has had to close due to an empty log yard.

So, what is going to happen?

It would be wishful thinking for all the mills to agree to a phased reduction in their pruned log supply so that all can remain viable for as long as possible. Rather, a price war could eventually evolve and then it will be survival of the fittest. Assuming proportionality, the ultimate 70% loss of pruned logs will lead, with no intervention, to a loss of around 1,050 jobs as some mills close and others reduce their capacity due to the in-fighting for pruned logs.

What could an intervention look like?

The simplest and most desirable would be for KT to reverse its decision to cease pruning. This wouldn't resolve the whole situation but it would help minimise the impacts. Is this purely a private company decision based on price or could central government provide some incentives? Pruning does require pruning crews and creates jobs in the regions. Other forest owners in other regions may be prepared to prune more of their resource if logistics links e.g. rail, made if feasible to deliver those logs to the CNI mills.

More realistically, some mills are going to have to reconfigure their sawing linesto process structural and/or industrial logs to supplement their reducing pruned log diet. This is not easy. Pruned logs are sawn for "value" recovery and not "volume" recovery. The head rig operator at a pruned log sawmill takes time after each pass to inspect the open face, decide on the next cut, and optimize the recovery. Structural and industrial grades are cut more for volume so a green mill is designed for high throughput where different equipment is utilized. It is not an easy solution to upgrade a pruned log sawmill to operate in a hybrid manner. At the moment, FEA is aware of at least two sawmills considering how they might do this. Indicative costs are NZ$7-10 million per sawmill. A better solution might be an independent, centrally-operated, greenfield, sawmill that saws logs and provides green (not yet kiln dried) boards to a consortium of these mills for kiln drying and on-selling. This means these mills can "protect" their investment in the pruned log sawmill and leave it to do what it was designed to do. Taking this further, the proposed 400,000 tpa log in sawmill in Taupo could be expanded at its front-end to say 800,000 tpa log in. Half the sawn timber could be processed through the Taupo site for the identified markets in China and the other half of the clearwood-type timber gets sold to these CNI pruned log mills as green sawn timber for further processing

One of the advantages of these mills moving to a mixed pruned/structural/industrial log diet is that they have scope to expand their operations and create more jobs. At the moment, while fully dedicated to an ever-decreasing pruned log resource, this is not possible.

[2] Tombleson, Jeff. "Pruned wood supply from the Central North Island and disrupter influences on wood processing." NZ Journal of Forestry, February 2018, Vol. 62, No.4, pages 5-9.

FEA does not purport that the above are all or even the best solutions. The point is that they are "different" solutions because we are thinking about the problem collaboratively whereas each of the 12 impacted sawmills is focussed on their own individual solution. It may be a collaborative approach will not work for reasons we haven't yet considered (one being, for example, that these mills are natural competitors). But it would be short-sighted to not even attempt to garner interest from the 12 impacted mills and, with their input, brainstorm a much bigger list of solutions, such as an industrial cluster, that could be explored to protect these jobs in the regions.

4.0 Discussion

The current coalition government is driving two major programs, under Minister Shane Jones, as (1) planting of one billion trees and (2) the billion dollar/year Provincial Growth Fund ("PGF"). These are very much about regional economic development and job creation in the regions.

While these initiatives are playing out over the next several years, some mills in the CNI may have started shedding jobs due to capacity constraints caused by the tightening supply of pruned logs

MBIE has oversight of the PGF program and it may be there is a case to be made to establish a co-ordinated project to look at options to work collaboratively with the 12 impacted mills. Each of these mills will likely be doing some preliminary internal thinking now on various strategies, but it could be there are some synergies available to them through a collaborative approach they are not considering. Some mills may be quite insular and happy to go it alone. Others may appreciate some collaborative intervention and independent analysis with central government support.

To some extent this is likely to happen with some of these mills as part of a mini Regional Growth Study initiative being carried out in the three southern Waikato districts of Waitomo, Otorohanga and South Waikato. The MBIE-sponsored SWEAP (Southern Waikato Economic Action Plan) process includes four of the 12 CNI pruned log sawmills:

- Pacific Pine, Putaruru
- Kiwi Lumber, Putaruru
- Tregoweth Sawmills, Te Kuiti
- Waitete Sawmills, Te Kuiti

Discussions amongst the mills are cursory at the moment as the SWEAP process has only just been through its initial discovery phase. But the mills are prepared to consider how they might work together under the auspices of the SWEAP framework for their joint benefit.

Whether any action item(s) coming out of SWEAP to address the concerns of these four sawmills, needs to be extended as a wider PGF initiative giving all 12 impacted sawmills the opportunity to opt-in, is worthy of further discussion.