

Pruned Stand Certification

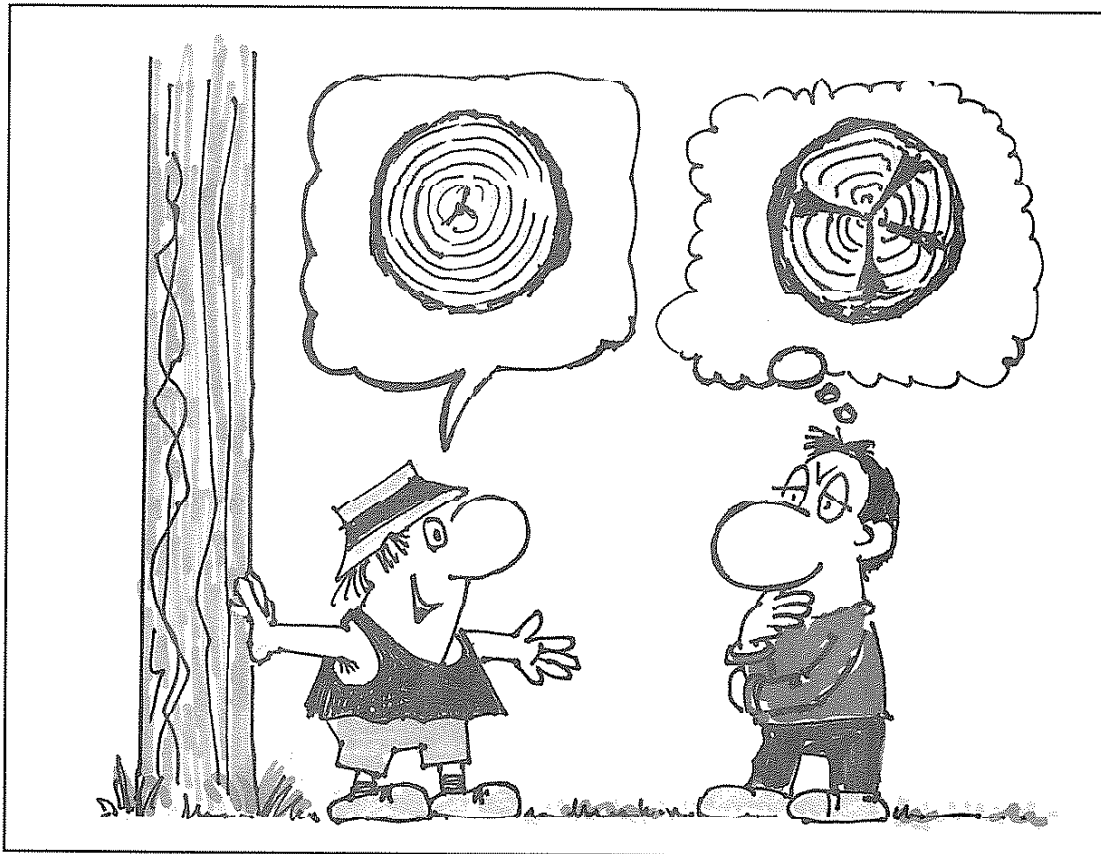


FIG. 1 — The problem: what will be the quality of the pruned logs from this stand?

Buyers and sellers can see the same logs from quite different points of view.

From the stand owner's perspective:

- Each pruning lift was on time and effective;
- The mean diameter over pruned branch stubs (DOS) for each lift is only a couple of hand widths across (or so memory suggests);
- These pruned logs are inherently worth 2½ times as much as unpruned logs. Therefore, for this particular stand, at current prices, an additional \$12,000/ha stumpage is anticipated because of the pruning.

For the log or stand buyer the situation is different:

- All pruned logs look the same;
- The best pruned logs can produce up to 80% of sawn outturn in clears grades while the worst produce no clears;
- Qualities of pruned logs from small forest stands can vary widely, reflecting the growers' knowledge, attitudes, and physical and financial ability to get the pruning done on time;
- A sample of logs from the accessible part of the stand may be quite different from what's further in, perhaps because a single pruning lift took several years to complete;

- Any premium paid for the pruned material is at risk and may be lost.

The future scenario might be even worse than this. With pruned log supply potentially increasing from about 200 000 m³ in 1991 to about 3 000 000 m³ in 2005 the main buyers of these logs could be off-shore, or at least very large companies. There may not even be the opportunity for the sort of interaction illustrated in Figure 1, and premiums are unlikely to be paid where risk for the buyer is high

This very difficult situation can easily be avoided. The buyer really only needs to know a few very simple details, such as:

- How effective was the pruning? and
- Was all the stand treated the same way?

The grower can readily and cheaply provide these details by:

- Measuring a small but adequate sample of pruned trees to establish the DOS for each pruning lift;
- Assessing stem sweep in the pruned zone;
- Mapping the pruning boundary after each lift; and
- Having this information authenticated by an independent expert so that it is credible.

The Pruned Stand Certification (PSC) service has been introduced by FRI to make this process possible.

What is the PSC service?

FRI initiated and implemented the service after considerable consultation with private forest growers, large forest-growing companies, forestry consultants, Ministry of Forestry research and management staff, millers, and forestry sector organisations.

The Pruned Stand Certification service provides:

1. A set of standards and procedures (in FRI Bulletin 167) describing:
 - necessary pruning quality
 - tree measurements
 - mapping
 - land description classification
 - auditing, i.e., verification of data collection standards.
2. Overall administration by FRI.
3. Data processing, mapping and document preparation, and long-term data storage, all carried out by FRI.
4. A nationwide network of auditors recognised by FRI who are prepared to visit any stand soon after pruning and carry out the essential data and map verification task.

The stand assessment procedures were developed after considerable research. Their aim is to determine the benefit in stand quality resulting from each pruning lift; they must do this accurately,

and be time and cost efficient in application yet easily understood and applied by the layperson.

The PSC service is recognised and supported by most of the main forestry sector organisations. It is endorsed in principle by the following:

- New Zealand Timber Industry Federation, representing sawmillers, timber processors and merchants;
- NZ Farm Forestry Association;
- NZ Forest Owners' Association Inc.;
- NZ Institute of Forestry Inc.;
- Ministry of Forestry;
- Tasman Forestry Ltd;
- NZFF Forests Ltd; and
- Forestry Corporation of NZ Ltd.

How does it work?

Pruned Stand Certification can be applied to any species or any size or shape of stand or shelterbelt. Several small blocks can be considered one stand if the effective pruning is the same. There is also a procedure for retrospective assessment if pruning has long since taken place. Once pruning has been carried out to a necessary minimum standard, the owner or owner's agent (e.g., consultant, silviculture operator) can do the following:

- Provide land description information. This is found, for instance, on rate demands or survey plans provided by the Department of Survey and Land Information (DOSLI)
- Locate and measure a minimum of eight five-tree plots. On each tree, measure pruning lift, diameter at breast height (dbh) and if pruning is over 4.5 m, significant sweep if present. Stocking is determined either from stocking plots or from between-planted-row and between-tree measurements. To make the task easier, DOS is measured on just two trees per plot and the dbh measures are used to adjust the estimated DOS (i.e., double sampling, a valid scientific procedure).
- Provide maps showing pruning boundary, plot locations, relocatable reference points, scale, and grid or magnetic north. The title plan or an aerial photograph available from DOSLI is usually adequate for mapping purposes.

If the assessment work is carried out by someone who is not registered as a pruned stand certification auditor, then the stand must be visited by an auditor and have the pruning boundary and about 25% of all measurements checked for accuracy. If the auditor carries out the full assessment task there is no need for further auditing.

Once accuracy constraints are satisfied, the auditor forwards the completed measurements and maps to FRI. FRI carries out the data processing and graphics work, issues the PSC certificate and archives a photocopy of the certificate with the original data and maps. Certificates are uniquely numbered and the grower receives the only original.

**PRUNED STAND QUALITY
CERTIFICATE**

The stand situated on the property
Land District *South Auckland*

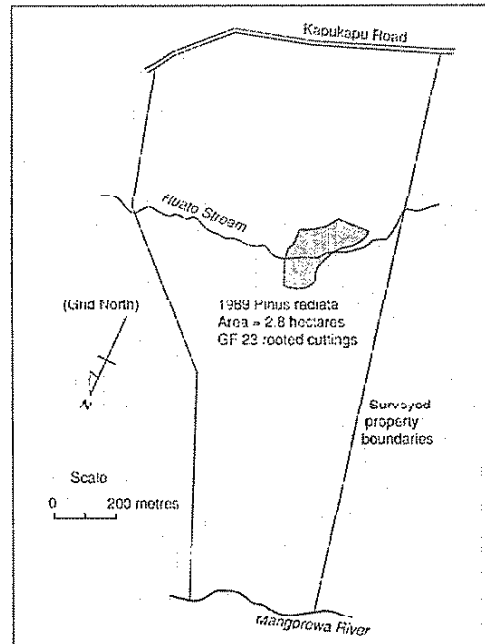
DP Survey District *Potatoe*
Lot Survey Block *1*
Maori Block
Section *11*

and described on the reverse of this document has been pruned as follows:

PRUNING LIFT NO	MONTH YEAR	PRUNED STOCKING stems/ha	PRUNING LIFT HEIGHT FROM TO m	MEAN DOS or	D.O.S. ACCURACY or	PROPORTION SWEEP %
1	June 1993	505	0 2.4	17.5	13	
2	April 1995	267	2.4 4.5	16.6	12	
3	Nov 1996	244	4.5 6.0	18.1	16	5
4						
5						

AUDITOR	ORGANISATION	DATE
1 J.S. Jones	Jones & Associates	5/7/93
2 J.S. Jones	Jones & Associates	16/5/95
3 J.B. Smith	Jones & Associates	20/11/96
4		
5		

The certificate is issued subject to conditions contained on reverse



Stand area and stand boundary are indicative only. Pruning lifts 1, 2 and 3 are independent audits.

CONDITIONS: Whilst every effort has been made to ensure accuracy of information on this certificate, the Forest Research Institute disclaims any liability for inaccuracies or omissions in this certificate and any other information provided in respect to the accuracy or completeness of any information given, and notes:

FIG. 2 — An example of a Pruned Stand Certificate showing the certificate format and the mapped information on the reverse.

However, if the certificate is lost a new one can be issued, and original data and maps can also be made available.

Figure 2 shows an example of the face and reverse side of a certificate. The former shows the property's legal description, and for each pruning lift:

- approximate date of pruning;
- measured stocking of trees pruned in the lift;
- pruning lift;
- mean DOS;
- 95% confidence limits of the mean DOS;
- percentage of stems with sweep; and
- the auditor's name, organisation, and date of inspection.

The reverse of the certificate provides a map with sufficient detail to enable the pruning boundary to be located on the ground.

As further lifts are carried out in the same stand (if the pruning boundary is identical) each new certificate supersedes the previous one.

This information should indicate adequately to potential buyers of either immature pruned stands (say, if the property is sold) or of mature stands for log sale purposes, just how effective pruning has been. At harvest, sample logs may still be required for further confidence building or to sample other features such as resin pockets.

How much does it cost?

FRI currently charges for its services. The auditor will charge independently and the amount will obviously depend on how much of the task is completed by the owner or owner's agent. Even the provision of a "title plan" map or aerial photograph and property legal description details will save the auditor considerable time and consequently cost to the owner. Charges by the auditor will vary depending on the many variables— travel distance, access, weed hindrance, quality of work and so on.

An example

The following example is provided to indicate possible relativity of revenues, pruning costs and certification costs. Actual charges and costs may vary considerably from these and will change with time. In this example:

- The owner carries out all assessment and mapping work to the required standard and the owner's input is not considered;
- The auditor checks map details and pruning quality, and remeasures two assessment plots. A total of 3 hours (including travel) is charged on each of the three pruning lift assessments; and
- The contract pruning costs for the three pruning lifts (to 2.2 m, 4.4 m, and 6 m, pruning 350, 300, and 250 stems/ha) are \$400, \$290, and \$250 /ha respectively, including supervision.

Pruned stand certification charges are relatively independent of stand area so, for instance, doubling the pruned area effectively halves the cost per unit area.

For the purpose of this example it is appropriate to divide the costs by the volume of pruned logs obtained at the end of the rotation, in this case 200 m³/ha at age 28 years. Because the pruning and PSC costs occur early in the rotation but the revenues occur at the end of the rotation they must be equated by compounding the costs to the end of the rotation. An 8% compound rate is used and the pruning costs become \$24.40/m³ and the PSC costs \$4.40/m³ for a 5-ha stand (or \$2.20/m³ for a 10-ha stand and so on). In comparison with the pruning cost, the PSC cost is small.

A price list for pruned logs from one New Zealand region shows a range of \$60/m³ based on log quality, and this range is supported by log sales in other regions. It is this premium that must be captured to justify the pruning cost and the small additional investment in PSC will help achieve this. If the full assessment cost were accounted for, the PSC charge would be considerably higher but still quite small in comparison with both the pruning cost and the possible range in pruned log price.

How does the grower go about using the PSC service?

Either: Have a registered auditor carry out the entire certification exercise. A list of auditors is available from FRI or Ministry of Forestry offices. The provision of a title plan or an aerial photograph and land description details will save the consultant time and the grower money.

Or • Purchase FRI Bulletin 167 with diameter tape from FRI or a Ministry of Forestry office. Also request a list of auditors.

- Carry out all mapping and assessment tasks as described in the Bulletin.
- Contact an auditor and request an inspection.

Once all necessary standards are complied with the auditor will forward maps and assessment data to FRI. FRI will return the certificate to the auditor who will forward it to the grower along with appropriate invoices.

Then the conclusion of trading in pruned stands or mature pruned logs should be as depicted in Figure 3.



FIG. 3 — The solution: the Pruned Stand Certificate defines log quality, and buyers and sellers can negotiate with confidence.

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