

Lesson 2

Introduction: The Benefits and Methods of Pruning

60 minutes

Objectives:

1. Participants will understand the benefits of pruning through discussions and review of some video footage.
2. Participants will be introduced to basic pruning methods.

Equipment Needs:

- ▲ flip chart
- ▲ Ministry of Forests video – *Pruning Second Growth Stands* (cued up at the start of Part One)
- ▲ VHS player and monitor
- ▲ overhead projector and screen

Method:

This section starts with a turn-to-your-neighbour exercise where the participants contemplate and list the benefits of pruning. A brief section of video confirms or expands on this discussion. The instructor debriefs the discussion to ensure clarification. Specific economic questions regarding increased quality are addressed, using a few overheads. Another brief section of video is presented and discussed to introduce basic pruning methods.

Note:



Flip Chart: The Benefits of Pruning – Why do we Prune?

Facilitator: Turn-to-your-neighbour exercise

1. Ask the group the question and give them 10 minutes to list some points.
2. Write all of the points on the flip chart (good or bad) without discussing any of the points.

Video: Part One – Why do we Prune?

Facilitator: Run the tape (4 minutes) – Cue at start (run to Part 2 – How to Prune)

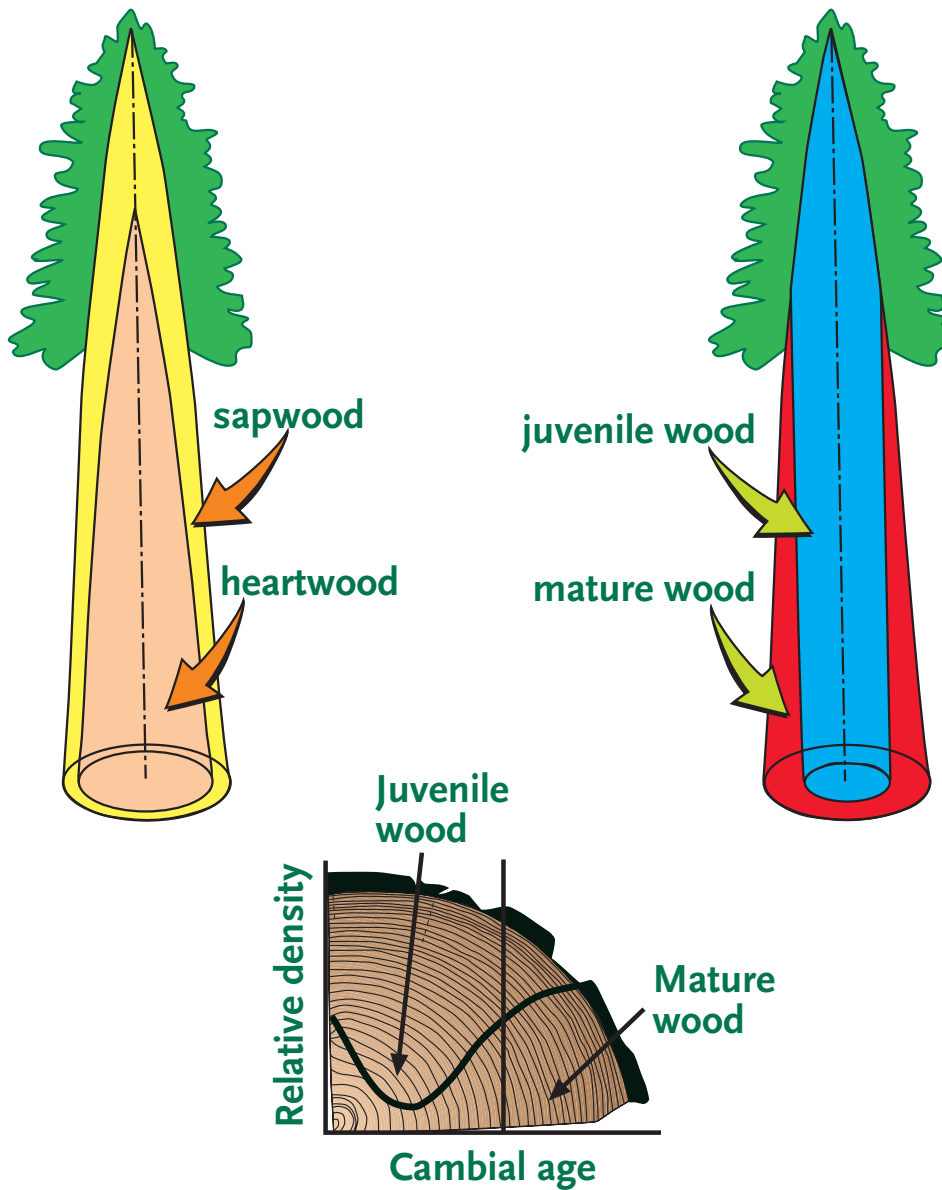
1. Re-visit the list of points on the flip chart.
2. Ask the group if there are any additional points they would like to add.

Key Points At this point make sure that all of the following key points are brought forward:

- ▲ Increased log and lumber value – but more specifically:
 - reduced knotty core and increased clear wood production
 - improved wood quality by reducing juvenile wood production
 - reduced stem taper (better lumber recovery over time).
While being a benefit for quality, you must be careful of encouraging low taper in stands with a high windthrow or snow breakage hazard.
- ▲ Reduced impact of white pine blister rust (more on this later).
- ▲ Reduced fire hazard in open stands with a thick-barked, fire resistant species. This is particularly important in dry-belt fir stands.
- ▲ Improved access – generally pruned stands are easier for large mammals (humans and ungulates?) to walk through. Of course this depends on the site – often until crowns close again brush cover can be quite heavy on rich sites.
- ▲ Aesthetics – this will depend on the audience. Pruning (along with spacing) gives the forest a very “managed” appearance, which is good if this is desirable to your public. Where the public is more interested in wild, natural or old growth forests, pruning may not be beneficial for aesthetics.

3. Ask them if there are any questions about what they saw on the video.

Juvenile Wood vs Mature Wood





Note: They may have a few questions on the following

Optional

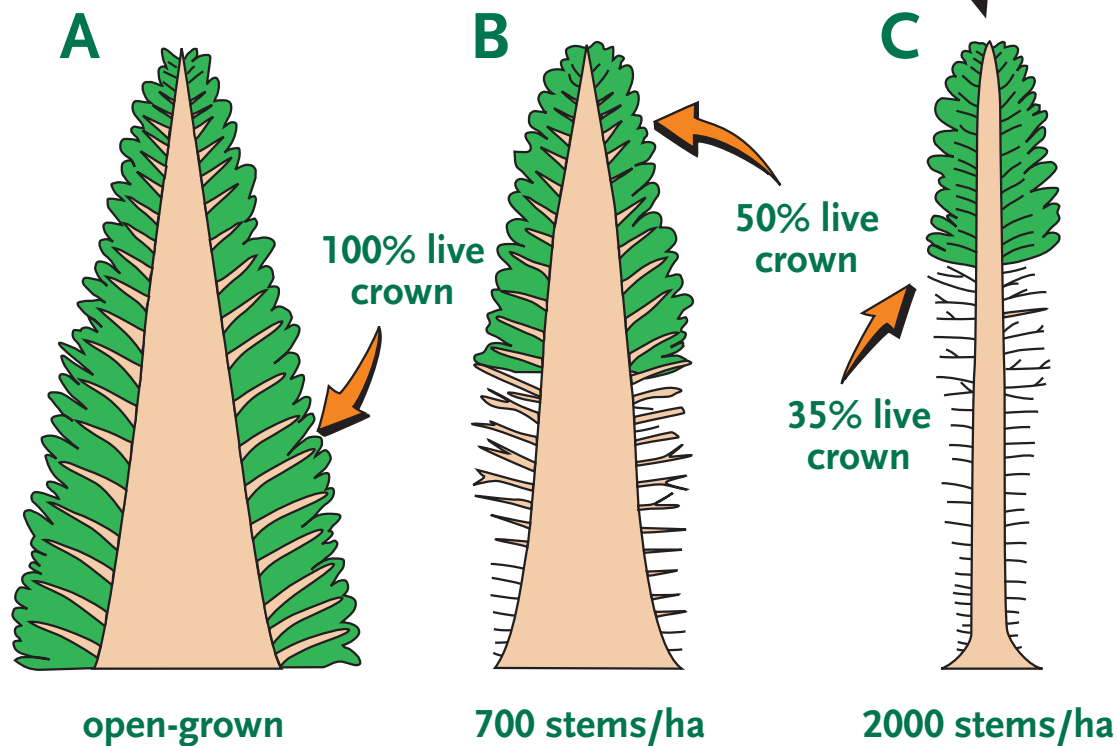
Overhead: Juvenile Wood vs Mature Wood

- ▲ A pronounced change in density often occurs during the first 15–30 years of growth on a tree. As wood density increases beyond this point it is often referred to as the juvenile wood mature wood transition.
- ▲ This “juvenile wood” is found in all trees, including old growth.
- ▲ Juvenile wood is produced in that portion of the stem directly under the influence of the live crown and the high levels of growth hormones (auxins) that are concentrated there. Juvenile wood is more appropriately called “crown formed” wood.
- ▲ Juvenile wood has lower relative density than mature wood. Relative density is the density of wood at a given moisture content relative to an equivalent volume of pure water. Juvenile wood has shorter fibres, larger fibril angles and slightly lower cellulose content than mature wood. These properties make juvenile wood more prone to warping and structural failure.
- ▲ As the live crown recedes up the stem, less auxins reach the lower stem and mature wood is then produced.
- ▲ Therefore, a 15-year-old Douglas-fir Christmas tree, with live branches to the ground would have 100% juvenile wood. If this tree grew for another 50 years in a 500–600 stem/ha stand on a medium–good site on the BC coast, its merchantable stem could contain about 50% juvenile wood by volume.

Live Crown and Stem Taper

Pruning controls the live crown

▲ similar to high stand densities





Optional

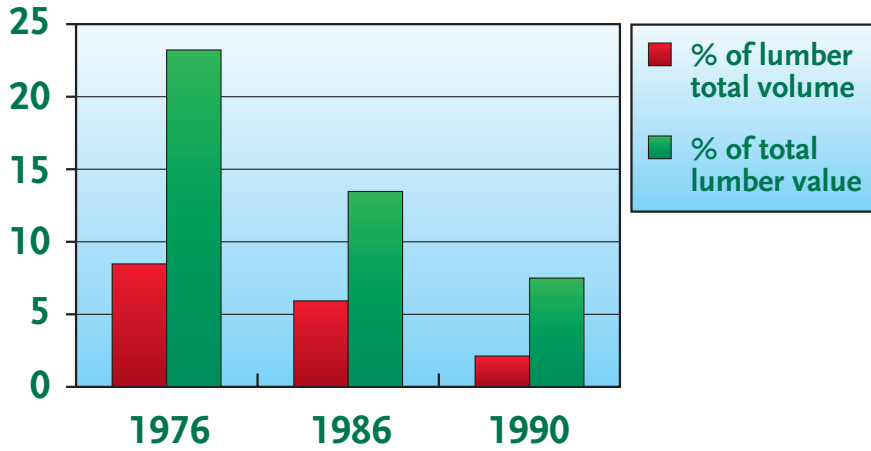
Overhead: Impact of Pruning on Reduced Stem Taper

- ▲ Reduced auxin on the lower stem, as a result of being further from the live crown, also results in slower radial growth than the upper stem, which is closer to the live crown.
- ▲ This differential growth over time will reduce the taper of the tree making it more cylindrical in shape.

Trends in Clear Wood Values

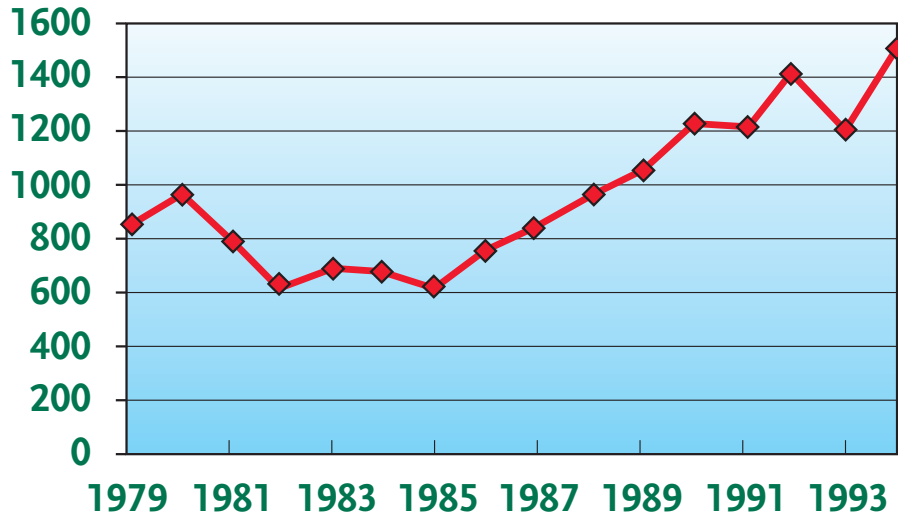
Reduction in clear wood in the Pacific Northwest

Percent



Coast mill prices for Fdc lumber

US \$ per thousand bd ft



Overhead: Trends in Clear Wood Production

- ▲ The value of aesthetically attractive lumber products is projected to rise as old growth timber supplies dwindle.
- ▲ Estimates of real price increase of 1–2%.
- ▲ Increasing scarcity of appearance grades will produce premium price differentials.
- ▲ The premiums for clear wood will likely be in the appearance grades as engineered wood products will likely heavily compete in structural grades.

Note: Engineered wood products such as trusses or parallam are still made from high valued wood (trusses are MSR 2 × 4s). Parallam comes from long strips of old growth Douglas-fir.





Changes in End Product Mix

A typical coastal Douglas-fir stand grown at 500 stems/ha

	Without pruning	With pruning
Clears	0%	12%
Select and #1	56%	48%
#2 lumber	24%	20%
#3 lumber	12%	12%
Economy	8%	8%



Overhead: Pruning Alters the End Product Mix

▲ The impact of pruning on timber production is not on volume, but value, based on the shift in end product mix to more clears.

Note: the production of clear wood may increase the value of a log at harvest by 4 to 10 times the value of an unpruned log.

Video: **How and When do we Prune?**

Facilitator: Run the video from the end of the “why should we prune section” to the start of the “where should we prune section.”

Flip Chart:

1. Ask the group if they have some experiences that they would like to relate to add to the information presented. Write the points on the flip chart.
2. **With regard to pruning in the winter:**
 - ▲ In very cold temperatures (below about -20°C) shears may shatter branches and cause irregular cuts. You may be better off in such temperatures with pruning saws.

