



# A workshop for Pruning

Participant's Workbook



BRITISH  
COLUMBIA

Ministry of Forests  
Forest Practices Branch

# Acknowledgements

Thanks are extended to Symmetree Consulting for preparing the Instructor and Student Pruning workbooks to coincide with the Ministry's pruning training video *Pruning Second Growth Stands*.

Special thanks go to **Forest Renewal BC** for funding the development of the training package.

Thanks also go to Frank Barber of the **Forest Practices Branch** and to TM Communications of Victoria for the final compilation and production.





# Learning Objectives

Participants will:

- ▲ understand the benefits of pruning
- ▲ become aware of basic pruning methods
- ▲ discuss and describe key biological principles, aimed at maximizing end product values for pruning
- ▲ rank stands for pruning using the *Pruning Guidebook* and discuss the rationale behind the guidelines
- ▲ investigate some potential management conflicts
- ▲ discuss SP and SMP requirements
- ▲ become aware of contractual issues
- ▲ discuss key evaluation criteria for monitoring contracts
- ▲ become aware of the key reporting issues



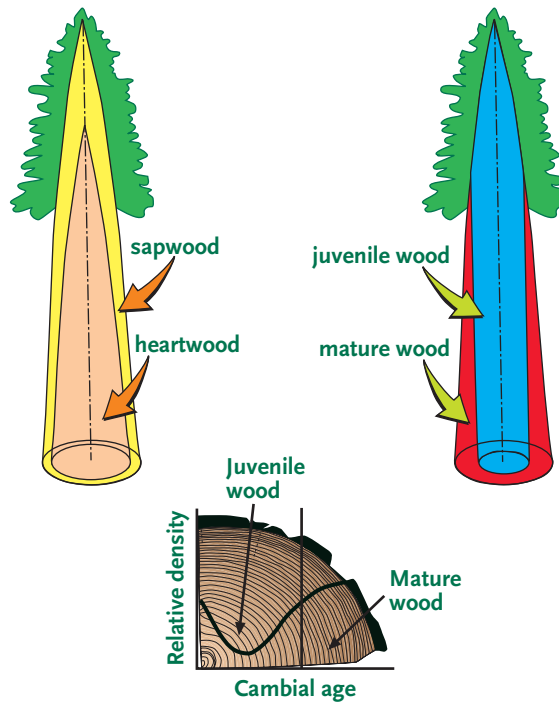


# Pruning Workshop Outline

Workshop Introduction	8:00 – 8:15 am
The Benefits and Methods of Pruning	8:15 – 9:15 am
Pruning Principles	9:15 – 10:15 am
Coffee	10:15 – 10:30 am
Ranking Stands for Treatment	10:30 – 11:00 am
Developing Pruning Prescriptions	11:00 – 11:40 am
Administering Pruning Contracts	11:40 – 12:10 pm
Adjourn	12:30 pm



## Juvenile Wood vs Mature Wood



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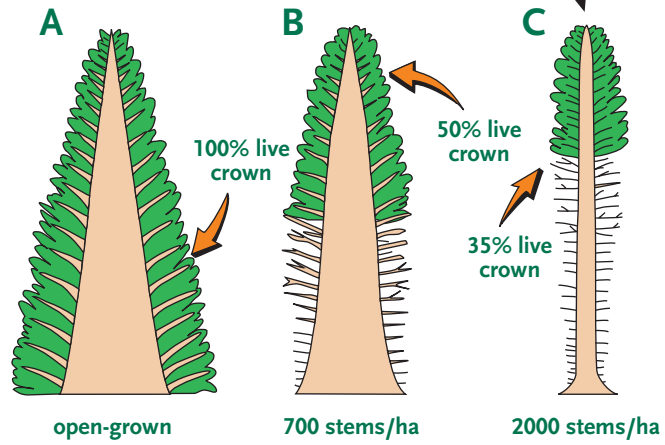
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## Live Crown and Stem Taper

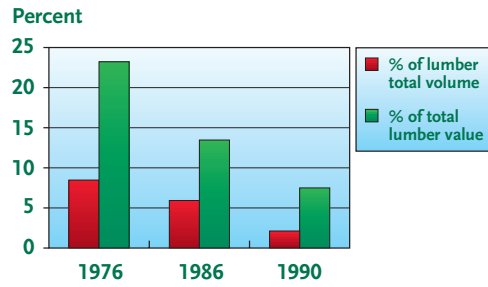
Pruning controls the live crown

▲ similar to high stand densities

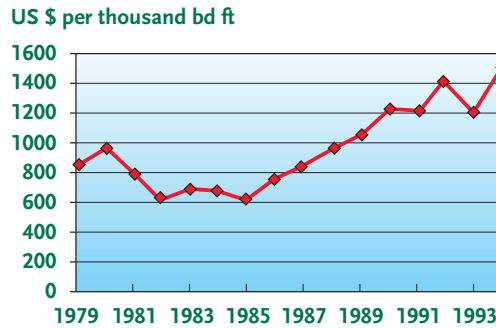


## Trends in Clear Wood Values

Reduction in clear wood in the Pacific Northwest



Coast mill prices for Fdc lumber



## 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%



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**How and when do we prune?**

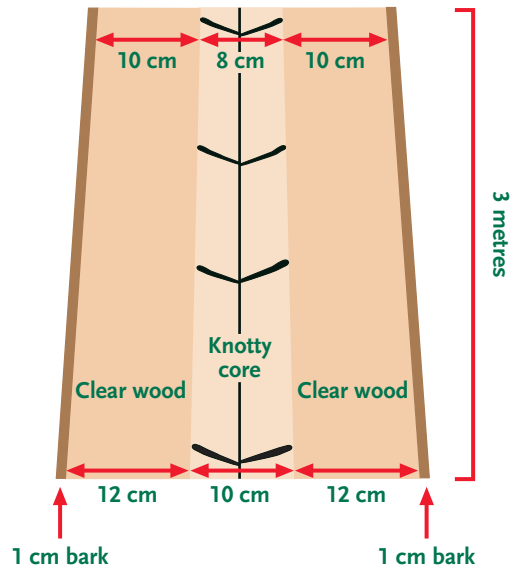
*Notes:*



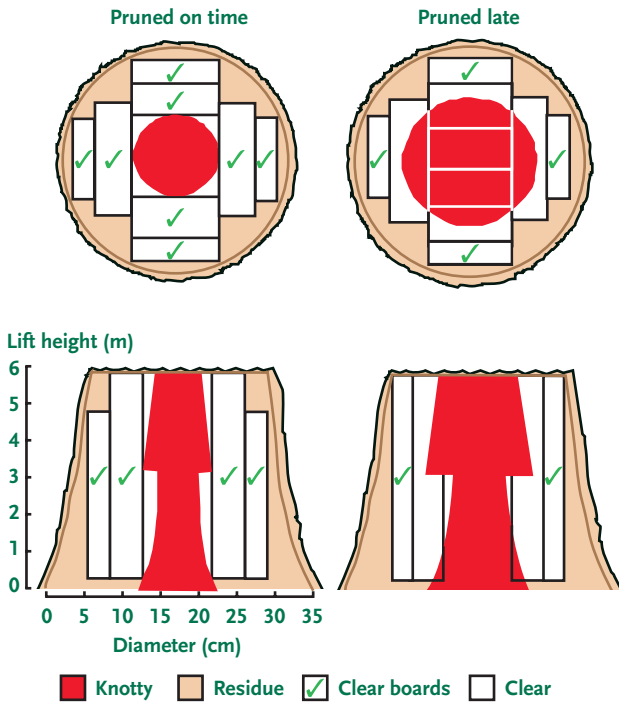
Lined area for taking notes, consisting of 25 horizontal black lines.



The End Product Target for Pruning  
One Lift



## Distribution of Clear Wood Relative to Timing of Treatment




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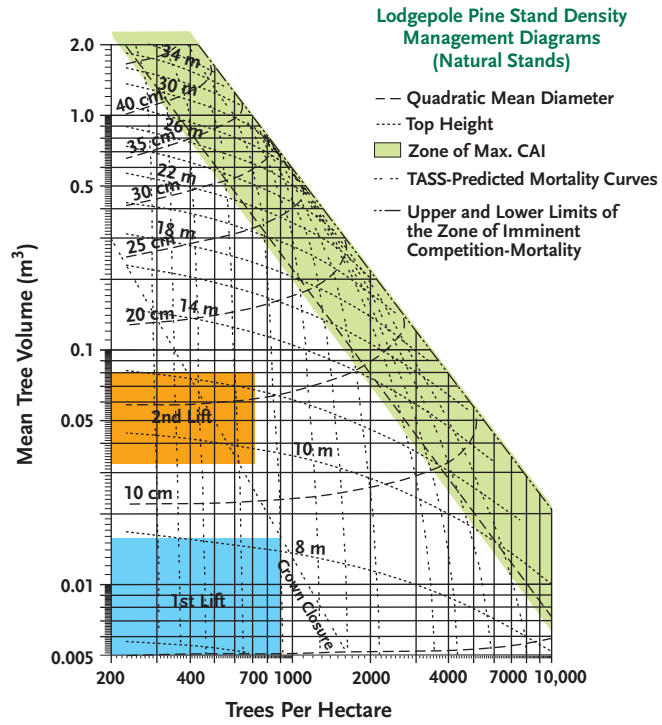
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## Optimum Pruning Density To Minimize Inter-crown Competition



**Timing**  
**Determining Optimum Pruning Height**



How do I time my lift in a stand with variable heights?



Consider:

- ▲ Height of pruning lift
- ▲ 50% residual crown is best

Example:

- ▲ 3 m single lift pruning
- ▲ average diameter trees should be:
  - 6–7 m tall (50% LC)
  - 5–10 cm dbh
- ▲ taller trees? should mostly be <12 cm dbh
- ▲ many smaller trees?
  - delay treatment until average diameter trees are closer to 7 m and 10 cm dbh
  - smaller trees can be 4.5 m

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## Coastal Stand Ranking Exercise

**Scenario:** Which stand offers the best pruning investment opportunity?

You will have some money available in your silviculture budget over the next 5 years to do some pruning to help meet your management plan objective of achieving a range of end product values, including some high quality clear sawlogs in the next rotation. Three areas have been identified as potential pruning candidates. These are large stands. Any one of them should be able to absorb all of your pruning budget for the next five years.

**Assume:**

- ▲ all of the stands are 90% Douglas-fir, with minor amounts of hemlock and redcedar.
- ▲ no forest health damage is apparent in any of the stands.

### Stand #1

SI <sub>50</sub> :	22
height (m):	6.2
dbh (cm):	17
density (stems/ha):	900
distance from mill (km):	142
road condition:	minor repairs required

### Stand #2

SI <sub>50</sub> :	34
height (m):	7.1
dbh (cm):	14.3
density (stems/ha)	780
distance from mill:	89
road condition:	minor repairs required

### Stand #3

SI <sub>50</sub> :	30
height (m):	5.6
dbh (cm):	7.0
density (stems/ha)	520
distance from mill:	42
road condition:	good road

**Your first choice:** \_\_\_\_\_

**Rationale:** \_\_\_\_\_

\_\_\_\_\_

## Interior Stand Ranking Exercise

**Scenario:** Which stand offers the best pruning investment opportunity?

You will have some incremental money available in your silviculture budget over the next 5 years to do some pruning to help meet your management plan objective of achieving a range of end product values, including some high quality clear sawlogs in the next rotation. Three areas have been identified as potential pruning candidates. These are large stands. Any one of them should be able to absorb all of your pruning budget for the next five years.

**Assume:**

- ▲ all of the stands are 90% lodgepole, with minor amounts of Douglas-fir and spruce.
- ▲ no forest health damage is apparent in any of the stands.

**Stand #1**

SI <sub>50</sub> :	21
height (m):	7.5
dbh (cm):	14
density (stems/ha)	650
distance from mill:	142
road condition:	minor repairs required

**Stand #2**

SI <sub>50</sub> :	26
height (m):	8.1
dbh (cm):	12.3
density (stems/ha)	1100
distance from mill:	89
road condition:	minor repairs required

**Stand #3**

SI <sub>50</sub> :	23
height (m):	6.5
dbh (cm):	7.8
density (stems/ha)	900
distance from mill:	42
road condition:	good road

**Your first choice:** \_\_\_\_\_

**Rationale:** \_\_\_\_\_

\_\_\_\_\_

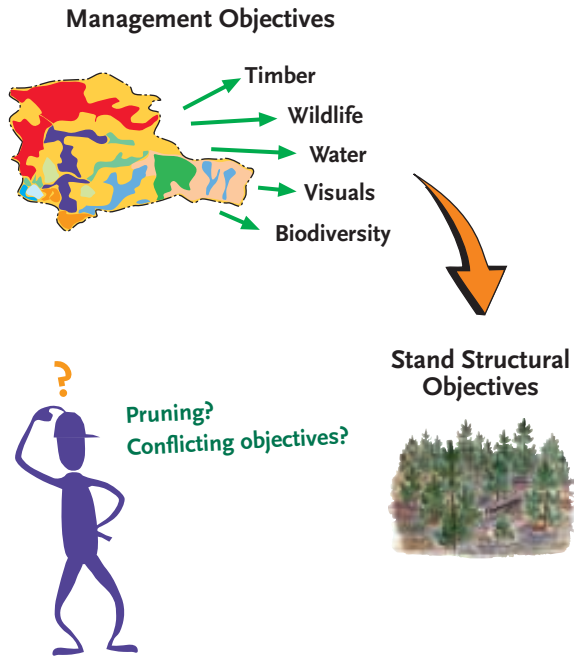


**Other questions:**



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# Management Objectives and Pruning




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SMPs and SPs



Pruning



Mostly an incremental treatment

▲ SMP required



Sometimes a free growing obligation

▲ SP required

▲ two scenarios

- 1. Pw is a crop tree
- 2. low densities for habitat

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## Pruning White Pine Crop Trees

Normally Pw retained but not counted as a crop tree

Where Pw are to be managed as a crop tree, and if control of white pine blister rust is necessary, the Pw must be pruned to meet free growing requirements.

*– Operational Planning Reg. 51(2)(d)(i)*

Rationale:

- ▲ to directly remove threatening branch infections
- ▲ to reduce potential infection sites
- ▲ increasing clear wood – secondary objective

Note: Proposed change in legislation to give the district manager discretion on pruning rust-tolerant white pine seedlings grown from Idaho seed stock to meet free growing requirements.




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## Pruning Very Open Stands Created for Habitat

Pruning required where minimum stocking  
is reduced to 30% lower than the guideline.

– *Operational Planning Reg. 51(2)(d)(ii)*

Rationale:

- ▲ to address clumped stocking in coastal grizzly habitat
- ▲ volume is already compromised
- ▲ do not want to compromise value (high % juvenile wood and knots)

**Note:** Proposed change in legislation to give the district manager discretion on pruning trees on lower productivity sites to meet free growing obligations where the volume and value of the timber is marginal (e.g., dry, low productivity sites that will not grow any appreciable large clear wood in a reasonable time frame).



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## Pruning Prescriptions and SMPs



→ **B-2 – Stand Level Objectives**  
e.g., 1000 m<sup>3</sup>/ha of 50 cm sawlogs  
at 90 years

→ **D – Target Conditions & Strategy**  
e.g., The stand is to be spaced to  
700 sph, followed immediately by  
pruning to 3 m. A second lift to  
5.5 m will follow in about 8 years.

→ **D-1 – Post-treatment Standards**

→ **E – Treatment Specifics**  
e.g., Shears or hand saws only – no chain saws will be allowed.

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## Pruning Prescriptions and SMPs

### The Window of Opportunity Concept



Consider including a  
*Pruning Window of Opportunity*  
in Section D-1 (Post-treatment standards).

- ▲ Use an upper limit for diameter beyond which no pruning will occur (e.g., 15 cm).
- ▲ In case funding does not come through in a timely fashion.



# Contract Administration and Project Administration

- ▲ How do you determine the timing of the various lifts?
- ▲ Suggest some approaches to space and prune combination projects.
- ▲ List the evaluation criteria for contract monitoring.
- ▲ What is the key issue for reporting?



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