Hardwood Management in the Coast Region

Hardwood Management : The Real Forester's tree

A guide to where, when and how to practice full rotation management.

Neil Hughes RPF
Coastal Silviculture Committee
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Full Rotation Management

1. A 30 year rotation makes planning for your end product very achievable !

2. Silviculture
   - Why and where to manage for hardwoods
   - Site identification and getting it right
   - What makes a good hardwood tree and stand
   - Decision making based on good information

3. Climate change risks and considerations

Full Rotation Management

- We are moving from natural stand harvesting into managed stands
- Shifting our focus from Free Growing to Final Harvest
- Planning around what we want from our block and when
- Time to accept one standard of 900/500/400 is not really appropriate everywhere !!

Full Rotation Management

- Red alder fits the bill for full rotation management very nicely
- With well executed silviculture on the right site you can harvest a valuable crop at about 30 years.
- As a forester you can see the outcome of your interventions very quickly !

Silviculture

1. Where to manage for hardwoods

1. Alder plantations on those site series where conifer are difficult to establish and alder will grow extremely well
2. Alder plantations on those sites where we know it will regenerate very heavily and grow to its potential
3. Mixed wood blocks on those same sites which regenerate heavily.

2. Site Identification and Getting it Right

2.1 Alder Planting

- Moisture and Nutrients, but in the right quantities:

- Soil texture very important – fine textures which help to retain moisture. Alluvial silts and fine sands are the best, coarser sands even on floodplains can be impossible to establish trees on.

- **Slope position is very important with the lower and toe slopes providing the best sites except in some of the richer and wider valleys where some flatter sites are extremely good.**
- **Fluctuating water tables, seen as site series 13,14, can be extremely productive, such as over marine silts/clays, or dreadful, as found in places on eastern Vancouver Island.**

Other factors vital to consider:

- Humus layer depths
- Aspect
- Frost
- Elk and deer – damage OR cost reduction
- Bark Beetles
- Climate Change Impacts – drought ☹

Sub Zones and Site Series

Medium and good productivity site series for Red Alder, Maple and Birch management

Species	BGZ	Site series													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
alder	CDFmm					6/C	6/D-E	*all*	*all*				all	all	
alder	CWHdm CWHxm	4/C				4/D-E	5-6/C	all	*all*	*all*				all	all
alder	CWHds1 CWHds2	4/C				4/D-E	5-6/C	all	*all*	*all*					
alder	CWHms2	4/C			4/D-E	5-6/C	all	all	all						
alder	CWHmm1	3-4/C				all	5-6/C	all	*all*	*all*					
alder	CWHvm1	3-4/C				all	5-6/C	all	*all*	*all*	*all*				
alder	CWHvh1 CWHvh2	*4-5/C*		*2/C*	3/C	all	all	*all*	*all*						
alder	CWHwh1	3-4/C			5-6/C	all	all	*all*	*all*						

Alder Plantation Establishment

- High quality bareroot or plugs – 310 ½+½ or 512 / 515
- Improved seed may become available as seed orchards are established
- Site prep treatment with either herbicide or mechanical screefing is extremely useful to get quick establishment and take advantage of alder's rapid early growth.
- Aim for canopy closure really beginning by year 4.

Jump Start for Alder

- Mixedwood allows you to avoid the regeneration risks of planting alder; focus on healthy, vigorous alder that is beyond the frost or vole damage phase.
- Still requires selecting the most suitable site series to ensure the alder remains productive through to final product size.
- Planted conifer may still develop and create a mixedwood stand in time.

What makes a good alder tree

- Vigorous height growth
- Stem Form – free of crooks and fork
- Branch size and number
- Amount of live crown

What makes a good alder stand?

- **Stocking Density**
- 1000- 1,500 sph at establishment.
- 600 – 1000 sph by the early Free Grow stage

A good Alder Stand

Uniform Distribution of Stems within the stand:

- Keeps branch size under control
- Keeps live crown depth under control
- Maintains good height growth and stem form.

Base Decisions on Good Information

1. For Plantations – careful ecological classification at the SP stage and post harvest confirmation that the site is suitable
2. For Mixed Wood – maintain an inventory of sites that are potentially going to have heavy alder regeneration.

   Plan to survey these sites on a schedule that fits in with identifying the regeneration patterns of alder.

Plantation stocking standards

Ecology	Species[1]		Target	MSS_p	MSS	MITD	Regen date	Free Growing
	Preferred	Accept						
CWHdm SS 07, 05	Dr 4.0	Mb 4.0 EP 4.0	1600	1000	800	2	3	20

[1] Includes minimum height at free growing in meters

Density Management

- To produce quality sawlogs in 25-40 years it is necessary to reduce the stand density.
- Roughly 1200ha has been spaced since 2006 with the Crown paying for the treatments
- Carried out at around 12 m top height and before the live crown has receded below 50%

- Target Post Treatment Stand Densities
- 600 sph
- 700sph
- 800sph

- Occasionally about 1000sph if the stand is very dense

Crown and Stem Form

Workers to Select trees for:

- Branch diameter
- Stem diameter
- Height
- Form

Who will Pay for Spacing ?

- The data and evidence exists to show that without spacing sawlogs will still occur.
- A question of time frames – spacing will reduce time to harvest by at least ten years and likely more
- Current tenure and appraisal system creates uncertainty for licensees and little likelihood of return on any investment SO
- Only Crown currently paying for spacing and this funding is very irregular.

Ongoing Management Questions

- What type of Stock
- Collecting Seed vs seed orchard
- Spacing – Yes or No ?

  What density?

Natural Regeneration and mixed wood management

What is in the Future?

- Declining mid term AACs and a shrinking THLB on the coast.
- Alder can fill gaps and provide a high value product – BUT it needs government stewardship to deliver especially around FG concepts
- Recognition that mixed species across the landscape it VERY valuable - eg SNC on Fd

- Climate Change and big drought Problems