Northwest Hardwoods started in 1967 (45 years ago). Northwest built the Alder Market that we know today by working with customers to develop grades and products to fit their customers specific needs. This customer commitment and relationship is still a strong focus for the business.

# The Operational implementation of Alder Spacing

When considering an alder stand for spacing under an intensive management regime a Pre Spacing Site Assessment should be done.

The assessment should look at:

• Age: Planted stands are best left to be spaced at around age 10 to 12. This is just a guide for consideration based on my own observations of stands we have worked with. Dense natural stands at this age can be a bit trickier.



**Crown Closure & Branch Drop:** Rule of thumb is no less than 30% live crown. That said if you have more than 50% live crown one might contemplate that it is too soon for spacing, consider waiting 2 to 3 years and re assess. You really do need trees to start shedding branches on their own prior to spacing. They will not shed any more after spacing until the canopy is fully closed again and if you are early you could be growing larger trees but they are likely to have far more branches than desired.







**General Stand Vigor ;** is a function of Height , Diameter & Stem Form , and is also linked to & Site Capture: Trees must be exhibiting good stem form , good height and Diameter as well as fully occupying the site .

**Good height is:** a function of site and should be so judged. Given what we have spaced to date I would say our stands have been spaced when they have reached a height of 12 to 18m, preference should be to the taller end of the scale while considering % live crown.

**Good Diameter is**: a function of stand density and site: we have spaced stands to date where the expected trees to retain range from 10 to 20 Cm DBH (lots around the 13,14 & 15cm mark).

**Good Stem form is**: a tree that has started to shed branches ,has a good height to diameter ratio , and is reasonably straight .It does not have to be perfect. The market bucks logs into 8' and 10' lengths at mills, as a result some sweep is acceptable. Multi tops are not preferred but if a tree has one or two strong leaders that will make logs in the future this tree is definitely preferred over a void and could be preferred over an otherwise suppressed sibling.

**Good site capture :** is when the whole site has been fully captured by the plantation. Often there are either minor or major stand gaps . Stand gaps may lead to some difficulty when doing pre spacing assessment. These gaps can be a result of changing micro site conditions (either wetter or drier sites). They may also be as a result of catastrophic events of various kinds or obstacles such as rock outcrops, ponds, slash piles or compacted sites. Often these types of gaps are not significant enough to change an overall prescription but do need to be considered. A plan for managing these situations needs to be developed that can easily be passed along to a Contractor for implementation of the prescription.

Considerations when dealing with stand gaps:

- 1. If a significant area of the stand being considered for treatment is not exhibiting the expected vigor or site capture it should be typed out and excluded from treatment.
- 2. If the stand gaps are small consider if a modified treatment is warranted ; lighter spacing, retaining denser stem count around obstacles or voids or possibly even encouraging conifers in certain instances ,these could all be effective management strategies.

**Natural stands** or stands with a component of naturally regenerated alder can be more difficult to assess. Typically natural stands are more dense an therefore need careful consideration and balance between opening the stand up too much vs. too little. These stands often have poor height diameter ratio ( they are tall and thin) with few lateral branches. As a result these trees are at far greater risk of snow snap or other negative events .The dense stands need to be opened up to promote the growth we want to attain from spacing , however as a result of growing so densely they are at risk from breakage from snow or wind-throw ( likely for 3 to 4 years post spacing). To date some professionals have left these areas as extensive alder management ( that is longer rotation ) while others have spaced some of this but not down to the usual density you might space your planted stand too. Something to think about if you are considering not spacing these dense alder stands, is that often there are very few trees expressing dominants and the result could vary from very high mortality at mid to late age to an extremely longer rotation or lost stand.

Natural stands can also often have clumps of conifers and or conifer understory under the alder. These types of natural alder stands can usually be spaced by considering the clumps of conifers separately from the main alder patch.

As you may know intimate mixed wood is not a choice available at this time, so the choice is just to space the alder, allow for scattered cedar as ghosts and otherwise implement a spacing strategy for alder ( and maple where appropriate). There is a lot of room for learning ,experimenting & discussion around intimate mixed wood. Specifically due to the fact that many of the stands we

have harvested usually have a component of intimate mixed wood .



**Planted stands** usually work out best for spacing , as they more often exhibit the preferred characteristics that guide us to a spacing prescription.



**Site preparation as it relates to alder spacing:** Like any other tree, the better prepared the ground you plant in, the better your chances of developing a stand that lends itself to consideration for spacing. The main point here is really one of establishment. Generally speaking alder stands need twice the number of plantable spots as do conifer plantations so making sure your site is able to receive an alder plantation likely takes a little more clean up or site management during or after harvest. If this is done well it makes for a more homogeneous stand and one that is more likely to be an easy candidate for spacing.

Plantation Densities as they relate to alder spacing: Historically on the coast we have planted at :

1600 stems per hectare, 1500, stems per hectare and more recently at 1200 stems per hectare.

The 1600 and 1500 sph plantations definitely benefit from consideration for spacing , the jury is still out on the 1200 sph plantations we have initiated.

Our experience observing a Weyerhaeuser plantation at 1100 stems per hectare, indicated at age 18 a significant component (around 40%) of the stand was exhibiting merchantable characteristics and had never been spaced. This indicates an ideal situation and what can be achieved. Given some of the risks we must manage for (frost, elk, bark beetle, Neonectria fungus) we are now planting at 1200 sph with an expectation of growing some stands of our own that do not need spacing , yet will be merchantable much sooner than natural stands.

**Post Spacing Densities:** There are three spacing densities that I know of that have been utilized as we have undertaken alder spacing. These densities are : 1000 sph, 800sph and 700 sph.

700 or 800 sph is believed to be the preferred target and my own observations would support choices in this range provided all the desirable characteristics and situations have been met as outlined earlier.

Allowing some amount of Variable density: Alder is an extremely good candidate species for variable density consideration. The reason for this is that should you choose to maintain extra trees on the edges of minor stand gaps the tree will lean & bend toward the light and capture the area available without effecting the final log grade or value. The allowable tolerance for sweep in saw log allows one to consider giving preference to significantly advanced trees that are tighter to their neighbor than the overall plan allows for. provided there is a lesser candidate next door that can be taken out to give the room need to grow .

**Knowing the markets for your wood:** Ultimately to consider a alder spacing prescription you should understand what the markets are that your spaced wood might target and how this supports a potential spacing prescription. The markets we work with today for alder tell us, that it is most valued to us as an appearance wood in furniture, floors, various mill work applications and kitchens. It does function in other applications but these are not where the higher values lie.

Knowing this we need to consider what impact our spacing can have on a stand and how that could influence the marketability of our future log.

Considerations:

Knots: Appearance grade alder prefers clears but does allow knots

Knot size : Appearance grade alder prefers small tight knots, larger knots are not as tolerable..

Knot spacing: Appearance grade alder will allow knots every 3'.

Growth rings: Appearance alder can take wide growth rings. I highest grade alder clears can have wide growth rings.

Logs with sweep are not ideal but can still be cut to produce boards, provided the sweep is not excessive and is only in one direction.





# Logs

Bucked and ready to haul



Northwest Hardwoods Superior and #1



# Alder Counter top

Growth rings no issue Tight small knot ok



### Alder Kitchen

Appearance wood



### **Alder Chest**

Appearance wood

**Infrastructure in place now and for the future** To proposed an area of treatment you need to believe that it is reasonable to expect a future business to be able and willing to access the site for logging years after your spacing is completed. The understanding is that sites properly planted and spaced should be available for market around age 30. That does not mean they must be harvested at this age (they can be expected to remain on site up to an age of 60 to 70 years) but of coarse the intention of spacing is to speed up access to this fiber .

In our experience to date we have not viewed many of our alder stands as being outside the scope for potential spacing.

**Questions??** 

Does Alder have a place in incremental silviculture on the coast? You bet it does.

Thanks for the opportunity to present.

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