MITIGATING MIDTERM TIMBER SUPPLY SHORTAGE

Are thinnings a solution?

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With our study we want to take a closer look at thinning operations as one possible way to mitigate the expected timber supply shortage for BC.

We used the Bulkley timber supply area as case study, representing a typical TSA in BC’s heavily affected by the mountain pine beetle epidemic and the related midterm timber supply shortage.

We created a selection of different scenarios to be modelled with Forest Planning Studio Atlas and other software solutions. These software solutions allows the modelling of longterm timber supply in a spatially explicit manner.

A total of 6 different scenarios were modeled, using two harvest methods (a) clear-cutting and (b) a 2-pass commercial thinning system.
Depending on the scenario, the minimum harvest age (for clearcutting) was determined to be the year in which mean annual increment culminated, or when standing volumes reached 150m³/ha. For Bulkley TSA a minimum volume of 150m³/ha is determined to be an appropriate time to harvest.

Commercial thinning was modeled 20 years before the stand reached Culmination of Mean Annual Increment CMAI and then again 20 years after. In scenarios where clearcutting was modeled to occur at 150m³/ha, due to stand volume restrictions that would have otherwise made thinning financially non-viable, stands were thinned only when they would reach at least 150m³/ha 20 years before reaching CMAI.

As shown in the graph, the current age class distribution is uneven and does show a shortage of timber in the age class 10 years and younger, as well as in the age classes between 50 and 89 years.
These charts show the age class distribution after 250 years of harvesting in each scenario.

Scenario (a) shows the Basecase scenario reflecting current management practices in the region. There is no timber available for harvest in the age classes 7 to 12, hence we are likely going to have another timber supply shortage in the future if the current approach is continued.

Scenario (b) shows the results when commercial thinning is permitted within 300m of current roads and stands are harvested when they reach a minimum volume of 150m3/ha.

In Scenario (c) commercial thinning is expanded to all available stands, regardless of distance to road.

In Scenario (d) no commercial thinning was modelled, but instead of being harvested at 150m3/ha, stands are harvested at CMAI. Again, this scenario is just putting off the timber supply shortage until later.

Scenario (e) shows what happens when commercial thinning occurs within 300 m of existing roads AND stands are harvested when they reach CMAI.

Scenario (f) shows what happens when stands are harvested at CMAI and all eligible stands are available for commercial thinning.

Overall we conclude that scenario (e) shows the most promising way to mitigate a
mid-term timber supply shortage, because in scenario (f) too many stands are commercially thinned early on, which delays the second cut, and delays harvesting. In conclusion, early results of this study show that implementing commercial thinning can be a solution for the mitigation of the midterm timber supply shortage, however, its application has to be chosen carefully.