# HSC 2021 Committee Meeting Minutes

# August 19, 2021 Zoom

Attendees: Andrew Bluhm, Glenn Ahrens- OSU; Bernard Bormann- University of Washington; Craig Wickland- British Columbia Govt. Stand Management Team; Randy Bartelt- Port Angeles Hardwood & Washington Hardwoods Commission; Brian Morris- WA DNR; Tristan Huff- Bureau of Land Management; Calvin Ohlson-Kiehn- WA DNR; Rob Slesak- PNW Research Station; Alvin Yanchuk, George Harper- BC Ministry of Forests; Barbara Hawkins- University of Victoria; Florian Deisenhofer- Hancock Natural Resource Group

The meeting was held on Zoom. Glenn Ahrens, HSC Program Director started off with introductions. Following that, Andrew Bluhm acknowledged the HSC cooperators and went over the meeting agenda, described the HSC Stand Management study, and provided an overview of the data collection schedule for all three installation types.

Last year (Winter 2020/21) was a busy year.

* One Type 2 installation (Humphrey Hill) had its 32nd year measurement.
* Five Type 2 installations (Lucky Ck., French Ck., Cape Mtn., Siletz, and Dora) had their 27th year measurement.
* Three Type 3 installation (Monroe-Indian, Turner Ck., and Holt Ck.) had their 27th year measurement.
* One Type 2 installation (Siletz) required the 4th pruning treatments required.
* Unfortunately, due to COVID restrictions, conducting the measurements was difficult.

Next year (Winter 2021/22) measurements consist of:

* Three Type 2 installations (Mt. Gauldy, Scappoose, and Darrington) will have their 27th year measurement.
* Two Type 2 installations (Ryderwood and Clear Lake Hill) will have their 32nd year measurement.
* One Type 3 installation (Menlo) will have its 27th year measurement.
* There will be no thinning or pruning treatments required.

As fall approaches, Andrew will contact each HSC member to provide specific on the activities and schedule the fieldwork.

Andrew then gave a summary of the latest refitting of the RAP-ORGANON growth and yield model. Key points were:

* When the original alder plantation version of ORGANON (RAP1) was first produced in 2011, the oldest measured data from alder plantations were 18 years total age.
* Comparison of model projections (using RAP1) to measured plot data from the HSC network found some inconsistencies, most notably significant underestimates of diameter in thinned stands, and overestimates of mortality in unthinned stands.
* A refit of updated, older datasets was done by David Hann and CIPS (Center for Intensive Planted-forest Silviculture) allied with the HSC.
* The new dataset included over 70,000 more measurements than the dataset used for RAP1 fit.
* The new dataset included only HSC data, it was found that the early growth in trees between the HSC dataset and the WeyCo dataset were significantly different from one another as to make model fitting improbable.
* All equation forms in the model were refit and if not significant, reparameterized.
* This refitting was completed for the control stands, is currently being done for the thinned stands, and should lead to better individual tree and stand level predictions.
* Preliminary evaluation of the model refit revealed that mortality rates increased significantly with the addition of the older stand data. In addition, the new model volume predictions are much closer aligned with observed values.

Discussion then centered around the probable role that drought associated with climate change with these observed increases in recent mortality. Glenn supported this hypothesis with data showing recent increased vapor pressure deficit using data from Molalla, OR. Attendees shared their observations of:

* Observed mortality in young alder plantations as well as in older, mature stands.
* Increase in bark beetle activity.
* Recent mortality across all species.
* Effect of the Summer 2021 “heat dome”.

Glenn then discussed the ongoing effort to produce alder plantation growth and yield tables. These yield tables would be generated with predictions from the updated growth model. Glenn used the intermediary growth model produced by CIPS to generate a preliminary set of growth and yield tables.

Methods:

* HSC Type 2 (plantation) sites were classified into three productivity classes- high, medium, and low and the three oldest sites within each productivity class were selected for this analysis.
* After deciding on merchantability standards ((30 ft target log length, 5-inch min. top, 8-inch trim), the original version of RAP-ORGANON was used to generate Scribner volume estimates in 5-year intervals for the following three treatments:
  + Plant at 250tpa
  + Plant at 525tpa
  + Plant at 525tpa and PCT to 230tpa at age 7

Preliminary results included:

* + Volume estimates at age 30 on High Productivity sites are around 17-20MBF/acre.
  + Volume estimates at age 30 on Medium Productivity sites range between 12.5-15MBF/acre.
  + Thinning reduces total yield by about 15% (as compared to the unthinned control).
  + Thinning increases mean log diameter class as compared to the unthinned control.
  + The economic benefit of thinning depends on price premiums for larger logs.
  + Thinning has a greater impact on medium productivity sites compared to high productivity sites.

Once the updated growth model is available, the HSC is intent on publishing a suite of red alder stand tables. Until then, however, the HSC would like further input from regional foresters as to what information should be presented and how the stand tables would be structured. For instance, creating volume tables using metric units would be of interest to British Columbia foresters.

Glenn then described the proposed lumber recovery project between the HSC and Cascade Hardwood. The main objective of this study would be to provide valuable information for land managers and for mill owners interested in red alder by obtaining information on the recoverable volumes and grade yields of lumber from managed plantations of red alder. The specific objectives of this project are (subject to change):

* 1. Provide characteristics of trees and logs from a red alder plantation with various silvicultural regimes (varying planting density, pruning, and thinning).
  2. Calculate total lumber volume recovery rates and grade recovery percentages for different silvicultural treatments.
  3. Compare overrun percentage, cubic recovery ratio (CRR) and lumber recovery factor (LRF) across treatments.
  4. Compare lumber volume recovery rates and grade recovery percentages to “woods-run” or industry averages (i.e. unmanaged, natural stands)?
  5. Determine how well log grades/log buyer specs predict lumber recovery.

Two sites are potential candidates for this study. Both are in NW Washington, near Mt. Vernon, owned by Swaner Hardwoods and managed by Goodyear-Nelson. These sites are two of the first HSC Type II installations established. Many of the specifics/details still need to be worked out, including:

* + Timing
  + Harvest Plan
  + Treatment, tree, and log selection
  + Log and lumber processing
  + Lumber grading
  + Cost structure

The next topic, alder genetics, was presented by Andrew. This general topic was broken down into three components- the alder clone trial, clone bank, and the future of alder tree improvement.

Clone Trial (for a full description please see the 2020 HSC Annual Report): The objective of this study was to establish a clone trial on public land (OSU Blodgett tract) to compare the performance of red alder clones with a woods run controls.

Study Design:

* The trial was planted in 2020 on the Blodgett Forest in NW OR. Approximately 1 acre was designated for the trial and cleared of any slash piles (and subsequent burn piles). The remaining acreage was an operational planting with a mixture of the red alder clones.
* The trial area was planted on a 9 x 9’ grid (537tpa).
* Four sources of seedlings were used in this trial: 1) Eighteen clones from the WSU program and grown as PSB 615A plugs, 2) Woods run bare root seedlings from the Weyerhaeuser Aurora nursery, 3) Woods run 615 plugs grown by PRT Hubbard from the 041 seed source (SW WA), bought from WA DNR, and 4) an “Open pollinated” plugs (lot #249) from a WSU clone trial grown as plugs by the WSU program (hereafter known as “Clones”, “WeyCo”, “DNR”, and “WSU”)
* The study design was a randomized complete block design with four blocks (i.e. replications).
* Each block (rep) contained 21 treatments:
  + 18 clones
  + The three comparison sources (WeyCo, DNR, & WSU) included twice (to account for its expected higher inter-tree variation).
* Immediately after planting, initial tree size (height and caliper) was measured on all 576 trees (not including the row plot borders)
  + Mean caliper was 4.4mm
  + Mean height was 55.8cm (22in)
* Grouping all clones together revealed small (but statistically significant) differences in initial caliper and height

Year 1 results:

* On average, clonal survival was excellent- greater than 75%.
* Caliper did not vary between clones and/or woods run sources.
* Height was greater for the clones than the controls and displayed much greater variation.

Clone bank (for a full description please see the 2020 HSC Annual Report):

* In 2019, the HSC, WHC, and Hancock Forest Management launched an effort to establish an alder clone bank, using material from WSU’s tree improvement program.
* The main objectives were to preserve the top genetic material, and possibly as a foundation for a future progeny testing/tree improvement program.
* The ODF Schroeder facility was chosen for the clone bank. Details of the clone bank are as follows:
* 20 WSU production clones were used
* 3 one-year-old plants per clone
* 12ft x 18ft spacing
* 0.3 acre (plus more if needed)
* Planted late Fall 2019
* All mortality was replaced with reserve trees
* FY20 Costs (site prep & establishment): =$2,550
* FY21 Costs (veg control & watering): =$992
* FY22 Costs (veg control & watering): =$2,310

Discussions about the future of an alder tree improvement centered around:

* The WSU clonal program has been shuttered. Seed may still be collected from their breeding/production orchards in the future.
* Adding more clonal material from either WSU or Weyerhaeuser.
* Advantages and disadvantages of a clonal program vs. a traditional breeding program.
* Building off of and collaborating with the established BC Ministry alder breeding program.
* Assembling an interest group to discuss the possibilities of a long-term Alder Tree Improvement program.
* Mimic the informal Western red cedar group as a way to continue alder tree improvement at little or no cost to possibly establish some regional trials once the clone orchard produces open-pollinated seed.

Next, Bernard Bormann, professor at University of Washington and Director of the Olympic Natural Resource Center shared his thoughts on the role of red alder in the PNW and some of the activities he is doing involving alder.

Next, Andrew presented the HSC budget. Please see the handouts included in the meeting folder. Highlights included:

* Dues received in fiscal year 2020 were $55,500.
* Actual FY2020 costs were greater than what was projected for FY2020.
* Andrew’s time decreased from 0.40 to 0.35FTE.
* The HSC will be carrying appx. $24,000 into FY2021.