Hardwood Silviculture Cooperative

Summer Management Committee Meeting Minutes

July 18, 2019 Chehalis, WA

Business Meeting

Attendees: Andrew Bluhm, Glenn Ahrens- OSU; Calvin Ohlson-Kiehn- WA DNR; Florian Deisenhofer, Cesar Carrion Guidotti, Randy Roeh- Hancock; Joe Monks- Washington Hardwood Commission/NW Hardwoods; Bob Deal- PNW Research Station; Darrel Alvord, Ken Jones, Alan Brunstad- Cascade Hardwoods; Randy Bartelt, Ron Hurn- Port Angeles Hardwood; James Donahey- Gifford Pinchot National Forest; George McFadden, Kenny Ruzicka, Jacob Attebery, Katie Benedek- Bureau of Land Management

The meeting started at 9:00 AM at the Ribeye restaurant in Chehalis, WA office with a welcome from the HSC program leader, Glenn Ahrens. After introductions, Glenn welcomed the new members to the HSC- Cascade Hardwoods and Port Angeles Hardwood. Following that, Andrew Bluhm moved on to HSC business with a review of last years’ fieldwork, the coming years’ fieldwork and an overview of the data collection schedule for all three installation types.

Last year (Winter 2018/19) was a busy year.

* Five Type 2 installations (Pioneer Mtn., Sitkum, Keller-Grass, Shamu, and Thompson Cat) will have their 27th year measurement.
* Three Type 2 installations (Weebe Packin, Wrongway Ck., and Tongue Mtn.) will need their 22nd year measurement.
* One Type 3 installation (East Wilson) will have its 27th year measurement.
* There are no thinning or pruning treatments required.
* Unfortunately, three of the ten installations were “orphaned” making it difficult to get the measurements completed.

Next year (Winter 2019/20) will be a very light year.

* Three Type 2 installations (Blue Mtn., Mohun Creek, and Hemlock Creek) will need their 27th year measurement.
* There are no thinning or pruning treatments required.
* Unfortunately, two (Blue Mtn. and Hemlock Creek) of the three installations are “orphaned” since the Washington Hardwoods Commission (WHC) will not support the measurements.

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

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

* Dues received in fiscal year 2019 were $38,500, down considerably from the dues received the year before.
* Actual FY2019 costs (with the exception of increased travel costs) were in line with what was projected for FY2019.
* Andrew’s time remained at 0.40FTE.
* The HSC will be carrying appx. $12,000 into FY2020.
* Starting in 2020, the HSC will be having two new dues-paying members- Cascade Hardwoods and Port Angeles Hardwoods.
* But because of the increased operating costs and increased overhead, Andrews’s time is projected to decrease to 0.35FTE in FY 2020.

Andrew then gave a summary of the latest refitting of the RAP-ORGANON growth and yield model. For a full summary, please see the HSC 2019 annual report. 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 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.
* Thinning modifiers were based on nearly 200 plots subjected to thinning, with remeasurements ensuring that more than 50 plots had at least 10 years of growth since thinning and 15 had 15 or more years of growth response.
* The Weiskittel et al. (2009) site index equation was refitted to derive growth effective age based on the current estimate of site index and the current height of the tree.
* The diameter growth equation was the same as that used for the original model.
* Only minor changes were made to the mortality equation, height to crown base equation, and the thinning modifier for height increment.
* The greatest changes were those to the height increment equation and the thinning modifier for diameter growth.
* The new height growth modifier predicted a negative impact of thinning on height growth similar to the original equation.
* The original effort to predict the direct effect of thinning, undertaken with much less time since thinning, found no significant direct effect of thinning on diameter growth. With additional time since thinning and many more measurements, a diameter growth thinning modifier verified that thinning did result in a significant and positive direct effect on diameter growth.
* On the stand level, the new equations underpredicted standing trees per acre, basal area and stand volume on both control and thinned plots, though the new fits are an improvement relative to the original equations. Importantly, given the identified shortcoming in the predicted diameter increment response to thinning, the difference between the measured values and the predicted values on thinned plots are greatly diminished using the new equations, with average standing Scribner volume underestimated by 7.6 and 3.0% on control and thinned plots with the new equations, versus 17.2 and 22.5% with the original equations, respectively.

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 and the audience voiced the following comments and questions:

* Is the HSC wanting to produce just a set of growth and yield tables or take it a step further by producing a management guide for alder?
* Would the growth and yield tables include economic variables?
* Technical assistance is needed from the HSC members to define the parameters of the tables and included variables.

The next topic, alder genetics, was presented by Andrew. This general topic was broken down into three components- the WSU alder clonal seedling program, an alder clone bank, and an alder clone trial.

WSU clonal seedling program:

* Clonal forestry in eucalyptus, poplar and other hardwood species have shown tremendous strides in improving wood properties and shortening rotation times. Therefore, an alder clonal program would allow for the production of large numbers of plants that have been selected to exhibit specific wood characteristics coupled to improved growth.
* In 1997, Weyerhaeuser initiated a clonal alder program. The alder clones were selected for the best form, growth, and characteristics suited to processing. Clones were tested for disease, frost, and drought tolerance.
* In 2011 Weyerhaeuser gifted the Alder Program (under a variety of contractual obligations) to Washington State University Research Foundation (WSURF).
* Initially, trees were selected (based on multiple criteria) from existing alder plantations. Branches from these trees were brought to the lab and treated to initialize new growth. Then, cuttings were taken, rooted and become the parents for further testing.
* These rooted cuttings were then placed out in replicated trials over multiple sites and years to assess the growth and tree form of the clones. Early results demonstrated significant gains in diameter and height compared to unimproved trees.
* In total, thirty-six (36) of the 648 clones were selected for production.
* The gain (from the top 20 clones) has been shown to be:
* DBH=1.2155
* HT=1.2165
* WSU has the objective to produce seedlings for sale to the general public. The expected availability is as follows:
* 15K available for fall 2020
* 80-100K available for spring 2020
* 120K available for 2021
* 200K available for 2022
* Seedling costs are yet undetermined.
* In addition to seedlings, WSU is expecting to produce improved seed also available to the public. The expected availability is not yet known but expectations are for 2020 production.

Clone bank (for a full description please see the 2019 HSC Annual Report):

* The HSC, WHC, and Hancock Forest Management launched an effort to establish an alder clone bank, using material from WSU’s tree improvement program.
* Multiple locations were explored for the establishment of the clone bank including the J.E. Schroeder Seed Orchard (ODF), Webster Forest Nursery (WA DNR), Peavy Arboretum (OSU), the Travis Tyrrell Seed Orchard (BLM), and the Walter Horning Seed Orchard (BLM). The ODF Schroeder facility was chosen for several reasons: ODF has historically been an HSC cooperator and is a strong supporter of tree improvement and gene conservation, the location is fully integrated for tree improvement and has excellent facilities and knowledgeable staff, and the climate at the location is suitable for alder.
* The clone bank would preserve the improved genetics developed by the program and provide a source of vegetative material and/or seed for further propagation. A clone bank to hold the genetic material safely is ideal for the long term storage of the selections. The exact number of clones (~20), raments per clone (~3-6), spacing (~10’ x 10’), and the establishment (~$5,000/acre) and maintenance (~$700/acre) costs, and funding sources are currently being determined.

Clone trial (for a full description please see the 2019 HSC Annual Report):

* Although early trials indicate gains in growth, because of the contractual obligations, the specific clones and gain values are proprietary. Therefore, the objective of this study is to establish a clone trial on public land to compare the performance of alder clones on the OSU Blodgett tract, plus a woods run control.
* The trial will be planted in April 2020 in an unfenced area on the OSU Blodgett Forest. The area (~1.1 acres) will have been cleared of any slash piles.
* The clones will be rooted cuttings and grown in PSB 615A plugs. The woods run trees will be grown by PRT Hubbard from the 041 seed source (SW WA), bought from WA DNR. Seedlings are PSB 615A plugs.
* The BLM offered to provide personnel to help bag and tag the seedlings.
* The study design is a randomized complete block design with the number of blocks determined by the number of clones to be tested and the availability of material (ideally 25 blocks). Each block will contain 16 treatments: 14 clones plus a woods run control included twice (to account for its expected higher inter-tree variation).
* Each treatment within each block is represented by an individual-tree plot, with planting locations randomly assigned. The trial will be surrounded by a minimum of two border rows of woods run control trees. All test trees, not including border trees, will be tagged with sequentially numbered aluminum tags.
* Initial tree size will be measured on either a) a subset of trees prior to planting, or b) all trees immediately after planting. Survival will be measured in year age 1 and 2. Tree size (height and diameter measurements) will likely be made in year 3, 6, 9, 12, and 17.

Brian Kyle (Northwest Hardwoods Canada) brought to the attention of the group that there is an alder improvement program out of British Columbia, specifically an improved seed orchard run by the BC Ministry. With help from Brian, Andrew will pursue gathering information from that program to help guide the HSC’s work with alder genetics.

Mill study

Conducting a mill study on plantation-grown alder has always been a long-term goal of the HSC. Now with many HSC plantations reaching merchantability and two mills joining the HSC, members think it is time to start planning a mill study. It was decided to form a subcommittee to pursue this topic. Both Cascade Hardwoods and Port Angeles Hardwoods volunteered for this role.

Field Tour

The afternoon was spent touring the Cascade Hardwood log yard and mill. Unfortunately, cottonwood was being milled that day but much was learned about alder log quality, mill productivity, and alder markets. Many thanks go out to Darrell Alvord and others from Cascade Hardwood.