Hardwood Silviculture Cooperative

Summer Management Committee Meeting Minutes

July 12, 2017

Wednesday July 12, 2017:

Attendees: Andrew Bluhm, Glenn Ahrens- OSU; Brian Morris- WA DNR; Carlos Gantz- Greenwood Resources /Washington Hardwood Commission; James Kirkpatrick- Bureau of Land Management

The meeting started at 8:00 AM at the Clatskanie River Inn in Clatskanie, OR with a welcome from the HSC program leader, Glenn Ahrens. After welcomes, Glenn gave an update on the current HSC effort of updating the red alder growth and yield model. The following is a summary of the effort:

* Background
	+ The goal of the HSC is to improve the understanding, management, and production of red alder.
	+ To take this knowledge and create red alder growth and yield tools for forecasting future yields of managed red alder stands.
	+ The first major step was back in 2010 with the development of RAP-ORGANON. This was the first red alder growth and yield model that specifically modelled the behavior of plantations.
		- The database used to develop this model was the most comprehensive ever gathered in the region- comprising 53 research sites.
		- The oldest plantations were 17 years old.
	+ Then in an effort to make the model more user friendly, the HSC and the Center for Intensively Plantation Silviculture (CIPS) created an Excel-based platform to run RAP-ORGANON.
* Rationale
	+ The modeling dataset was deficient in old trees/stands, resulting in an unknown amount of error in model projections.
	+ Ideally, a modeling dataset should cover the entire range of desired projections.
	+ An official model validation performed by David Hann indicated that other than the mortality equation, the model performs well when projecting stand-level attributes over time.
	+ However, using more recent data, the HSC evaluated model predictions for:
		- Trees per acre
		- DBH
		- Basal Area
		- Height of the largest 100tpa
		- Cubic foot volume.
	+ In brief, the results indicate that RAP-ORGANON consistently under predicts these five stand variables.
* Improvement Possibilities
	+ With the continued collection of data from HSC sites, additional data from older stands is now available.
	+ There is currently a large amount of 22 year-old data and some 27 year-old data. This offers potential for the improvement through updating existing red alder management tools as well as the development of new tools. Options include, but are not limited to the following:
		- Improve the predictive ability of RAP-ORGANON by refitting the appropriate equations by including all new data.
		- Using the modeling dataset, develop stand tables to project managed, even-aged, pure species stands. These stand tables would be a welcomed new tool for forest managers.
	+ The HSC is exploring the options to update and improve growth and yield projection tools with extra help from cooperators or collaborators.
		- Greenwood Resources: We are working with Carlos Gantz (also a member of the WHC) to explore the feasibility of using the HSC dataset to develop new stand tables.
		- CIPS: We are working with Doug Maguire and Doug Mainwaring to develop an approach to re-fit the growth model equations with an updated dataset that we can then re-apply with periodic updates without having to undertake a big new contract project each time.
	+ The HSC has already prepared the data and sent a limited dataset to both groups.

Next was a presentation given by Andrew Bluhm titled “Effect of Species Mixtures on Growth and Yield of Red Alder and Western Redcedar”. This presentation was based on the report presented in The HSC 2017 Annual Report. Please see the annual report for the full results. A summary of the results are as follows:

* Introduction
	+ The relationships among tree mortality, tree size (DBH, Height, cubic foot volume), and stand yield in planted red alder and western redcedar species mixtures were explored at a modified replacement series at a 26 year-old site growing on abandoned agricultural land near Mt Vernon, Washington.
	+ This study is the only one in the USA and the oldest of its kind in existence.
	+ Treatments included four species proportions (100% red alder, 25% red alder/75% redcedar, 50% red alder/50% recedar, 100% redcedar) planted at 680tpa (8’ x 8’ spacing). An additional treatment of pure red alder was planted at 170tpa (16’ x 16’ spacing) was also included.
	+ Redcedar was planted in 1990 and the red alder planting was delayed for seven years (1997 and interplanting in 1998).
	+ However, due to early seedling mortality from *Septoria alnifolia*, four of the 13 treatment plots failed and the only pure red alder treatment plot was compromised.
* Results
* By 2016, redcedar had much higher survival than red alder.
* The survival of both species was greater in the mixtures than in the pure species treatments.
* Red alder DBH and height was greatest at the lowest densities of red alder and was independent of the mixed or pure treatments.
* Redcedar DBH and height were reduced when grown in species mixtures compared to pure species treatments (19% and 10%, respectively).
* Red alder individual tree cubic foot volume was greatest at the lowest densities and redcedar individual tree volume was greatest in the pure species treatment.
* Total merchantable stem volume was greatest in the treatments that contained a redcedar component, whether pure or mixed species. Volume in the pure red alder treatments was less than half of that of the treatments that contained redcedar.
* In the mixed species treatments, relative yield (RY) of the red alder was >1 (indicating growth enhancement) whereas for redcedar RY was <1 (indicating a growth penalty).
* Relative land output (RLO) for the mixed species treatments was <1, indicating a substantial increase in per acre productivity as measured by merchantable volume.
* Conclusion
	+ These positive yield improvements over the pure species treatments were observed mainly as the result of increased survival of both species, increased volume of red alder in the mixed species treatment, and shade tolerance of the redcedar allowing the development of a distinct stratified (two-storied) stand structure.
	+ These results demonstrate that there is potential for mixedwood management and that forest managers should consider species mixtures as a means to enhance productivity, yield, and other management objectives.

Andrew then 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 2016/17) had fieldwork on a total of six sites:

* Two Type II installations- Clear Lake Hill (4202, GYN) and Ryderwood (3202, WHC) had the 27th year measurement.
* Three Type II installations- Mt. Gauldy (2206, SNF), Scappoose (3209, BLM), and Darrington (4206, WADNR) had the 22nd year measurement.
* Of these installations there was one pruning treatment (Mt. Gauldy).
* One Type III installation- Menlo (3301, WADNR) had the 17th year measurement.

This coming field season (Winter 2017/18) will be a busy year.

* Two more of the oldest HSC sites (LaPush and Pollard Alder) will have their 27th year measurement.
* One Type 2 installation (Maxfield) and one Type 3 installation (Cedar Hebo) will need their 22nd year measurement.
* In addition to the above measurements, two installations will require thinning (Dora and Cape Mtn.) and three installations are due for the 4th and final pruning lift (LaPush, Cape Mtn., and Maxfield).
* There are no orphaned sites due for measurement or treatment.

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 2017 were $58,500, up $11,000 from the year before.
* Actual costs (with the exception of Andrew’s cost) were in line with what was projected.
* With the increase dues, Andrew’s time was increased in 2017 from 0.30FTE to 0.35FTE.
* Starting in 2018, ODF will no longer be a dues paying member.
* However, because the HSC currently has a significant carryover, Andrews’s time will remain at 0.35FTE.

After lunch, the grouped toured Greenwood Resources Tree Improvement Center in Westport, OR. Here, Kathy Haiby led the group through their greenhouses to view and discuss alder and poplar propagation. Carlos Gantz then walked the group through field trials that included:

* *P. trichocarpa* top line trial – Selection for ease of sugar release
* *P. trichocarpa* common age (2013) trial
* *P. maximowicizii* breeding orchards
* Seedling availability

The final stop was a visit to Greenwood Resources Lower Columbia Tree Farm out of Clatskanie, OR. Here, Carlos Gantz then walked the group:

* Hybrid poplar 1428; Stand 02-750; harvest age stand
* Recent hybrid poplar plantation; Stand 02-180; 4 years old; verification trial
* Red alder clonal trial; Stand 02-185