SMC Quarterly News

Stand Management Cooperative
School of Forest Resources, University of Washington
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www.standmgt.org

Dave Briggs, SMC Director

From the Director

Now that we are starting 2011, all of the SMC faculty, staff, and students hope that your 2010 ended with a great holiday season and that 2011 will be an even better year. With the close of 2010, preliminary budget data indicates that we ended the year with more than the $20,000 we had set as as an ending balance. With all of the negative reports regarding the State of Washington budget and how it will hit education very hard, it is nice that the SMC is starting the year on a positive note. We are really concerned about the effects on our ability to sustain our graduate student program as we see resources that we have had great success in getting to support students shrink.

The primary content of this issue is a series of announcements that we want to get to you in the hope that early notice will allow you and others in your organization to attend. I addition, there are announcements of new publications that may be of interest to some of you.

Meeting Announcements

February 15: Conference "Intensive Silviculture of Planted Douglas-fir Forests: Opportunities for Increased Productivity"

This conference will be held on February 15 at the Doubletree Hotel at the Lloyd Center in Portland, OR. It is sponsored by the Center for Intensive Planted Forest Silviculture (CIPS) and the Western Forestry and Conservation Association (WFCA). For program details and on-line registration visit www.westernforestry.org

inside:

Gifford Pinchot National Forest Headquarters, Vancouver, WA.

April 19-20: Stand Management Cooperative Spring Meeting

The SMC Spring Meeting will be held on April 19-20 at the Gifford Pinchot National Forest Headquarters in Vancouver, WA. Rooms have been blocked at the Best Western Vancouver Mall 800-528-1231, under Stand Management Coop. The rate is $70 w/o tax for a double queen. Go to the SMC Events website for agenda details and registration.

April 19 SMC Workshop "*What is the growth, yield and quality of Douglas-fir stands planted at different spacings and what is the effect of thinning and pruning?"*

The Stand Management Cooperative designed planting density trials at 100, 200, 300, 440, 680, and 1210 stems per acre to study the effects of no further management and the use of thinning and pruning. Designated the "Type III Installations" among the suites of SMC trials, they were planted between 1985 and 2001 with the best current regeneration practices. Plantings were at least 3 acres per spacing. A control measurement sample plot was established in each spacing. In the 440, 680, and 1210 stems per acre plantings, additional thinning plots were established based on relative spacing. In the 100, 200, and 300 plantings additional pruning plots were established. In total there are 47 Type III installations in western Oregon, Washington and coastal BC of which 38 are Douglas-fir, 6 are western hemlock, and 3 a 50/50 mix of Douglas-fir and western hemlock. Collectively they have 564 plots. This workshop summarizes performance of the Douglas-fir installations and will provide forest managers with results on how growth, yield and quality of these installations have developed with or without thinning or pruning treatments. The objective is to provide information and tools they can use to assist in making management decisions. The workshop proceedings will be captured on streaming video and placed on the SMC website so attendees and others can review it at any time in the future.

The workshop will start at 1:00 on April 19 following lunch, (which is included in the registration fees). Workshop attendees are welcome to attend the morning portion of the SMC meeting where the Modeling, Nutrition, Silviculture, and Wood Quality Project Leaders will provide progress reports on other SMC projects. This would be a good opportunity to learn about these projects and join in the discussion. Registration details are on the SMC web site, you can also contact Megan O'Shea. moshea@u.washington.edu for details.

September 20-21: Stand Management Cooperative Fall Meeting

The SMC Fall Meeting will be held on September 20-21. The location and agenda details will be provided in future newsletters.

CONIFERS NOTES # 20

Date: October 25, 2010

RE: GUI and R Conifers Modifications

In testing the 1.0.3 version of RConifers, we found a couple of other problems one with random error and the other with a very small rounding error on the site index in the SMC variant. We also corrected a problem with error flagging of bogus data items on input.

The new version of the R package is version 1.0.5, and can be loaded from the CRAN site in the usual manner. The new version of the GUI is 4.13.

If you encounter any problems with the package, please contact Martin Richie at mritchie@fs.fed.us

The State of British Columbia's Forests, 3rd edition

Louise de Montigny sent the following link on the latest "state of the forests" report for the BC province. The associated press release provides a good backgrounde with some useful statistics.

http://www.for.gov.bc.ca/hfp/sof/

Also note that Louise is in a new position due to a major reorganization so you may want to check that you have correct contact information

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Abstracts and Publications

Bootstrap Evaluation of a Young Douglas-Fir Height Growth Model for the Pacific Northwest. Vaughn, Nicholas R.; Turnblom, Eric C.; Ritchie, Martin W. Source: Forest Science, Volume 56, Number 6, December 2010 , pp. 592-602(11).

Abstract: We evaluated the stability of a complex regression model developed to predict the annual height growth of young Douglas-fir. This model is highly nonlinear and is fit in an iterative manner for annual growth coefficients from data with multiple periodic remeasurement intervals. The traditional methods for such a sensitivity analysis either involve laborious math or rely on prior knowledge of parameter behavior. To achieve our goals, we incorporate a bootstrap approach to obtain estimates of the distribution of predicted height growth for any set of input variables. This allows for a sensitivity analysis with knowledge of the probability of a given outcome. The bootstrap distributions should approximate the variation we might expect from running the model on numerous independent datasets. From the variation in the model parameters, we are able to produce ranges of height growth prediction error falling under a given probability of occurrence. By evaluating these ranges under several combinations of input variables that represent extreme situations, we are able to visualize the stability of the model under each situation. Each of the four components of the model can be investigated separately, which allows us to determine which components of the model might benefit from reformulation. In this case we find that the model is less stable in extremely high site index, especially under low vegetation competition. Other than the computing time involved with the bootstrap, most of the analysis is fairly quick and easy to perform.

Predictions of wood density and module of elasticity of balsam fir (Abies balsamea) and black spruce (Picea mariana) from near infrared spectral analyses. Qinghua Xu, Menghua Qin, Yonghao Ni, Maurice Defo, Barbara Dalpke, and Gail Sherson. Can. J. For. Res. 41(2): 352–358 (2011) | doi:10.1139/X10-215 | Published by NRC Research Press / Publié par NRC Research Press.

Abstract: The predictions of properties for wood disc average are seldom reported, and they are important for sorting out logs based on their quality. The minimum near infrared (NIR) spectra required to predict wood disc average properties would also be of critical importance. In this study, calibration and prediction models for wood disc average properties

were developed using NIR spectral data for balsam fir (Abies balsamea (L.) Mill.) and black spruce (Picea mariana (Mill.) B.S.P.) samples collected from 14 different sites across Newfoundland, Canada. The calibration was done against area-weighted average wood properties determined by SilviScan. NIR spectra were collected in 18 mm increments from the radial–longitudinal face of green and oven-dried samples. Results showed that using NIR spectra from three spots per wood strip was sufficient for the modeling and prediction for density and module of elasticity (MOE). The coefficients of determination ranged from 0.76 (MOE of green wood samples) to 0.88 (density of oven-dried wood samples). However, the microfibril angle (MFA) cannot be well predicted from either green wood or oven-dried wood NIR spectra. Our results further showed that the NIR spectra collected from oven-dried wood samples gave better calibration and prediction than those collected from green wood samples.

Implications of Alternative Field-Sampling Designs on Landsat-Based Mapping of Stand Age and Carbon Stocks in Oregon Forests. Duane, Maureen V.; Cohen, Warren B.; Campbell, John L.; Hudiburg, Tara; Turner, David P.; Weyermann, Dale L. Source: Forest Science, Volume 56, Number 4, August 2010 , pp. 405-416(12).

Abstracts: Empirical models relating forest attributes to remotely sensed metrics are widespread in the literature and underpin many of our efforts to map forest structure across complex landscapes. In this study we compared empirical models relating Landsat reflectance to forest age across Oregon using two alternate sets of ground data: one from a large ($n \sim 1500$) systematic forest inventory and another from a smaller set of plots ($n < 50$) deliberately selected to represent pure conditions along predefined structural gradients. Models built with the smaller set of targeted ground data resulted in lower plot-level mapping error (root mean square error) and higher apparent explanatory power (R2) than those built with the larger, more widely distributed inventory data. However, in two of the three ecoregions considered, predictions derived from models built with the smaller ground data set displayed a bias relative to those built with the larger but noisier inventory data. A modeling exercise, wherein mapped forest age was translated into carbon, demonstrated how nonlinear ecological models can magnify these prediction biases over landscapes. From this study, it is clear that for mapping purposes, inventory data are superior to project-specific data sets if those data sets are not representative of the full region over which mapping is to be done.