



**Concepts, Calibration and Data
for Forest Modeling**
A Forest Biometrics Research Institute Workshop

**Sheraton Hotel at the Airport
Portland, Oregon
November 14 – 15, 2011**

You are invited to participate in a forest biometrics calibration workshop. We will review, demonstrate and apply methods of growth model calibration for localizing site curves, taper profiles, growth models, mortality estimates, silvicultural effects and genetic gains. We will be using the Forest Projection System (FPS Version 7.0) and the external FPS Region/Species libraries for workshop exercises, but the principles being presented may be used to evaluate and refine any model.

The calibration methods are all non-parametric. Information from the workshop will provide you with the means to test and calibrate any species in any region. If you manage a “working forest” then someone in your management team should understand and know these principals.

This workshop is part of a plan to cooperatively improve the array of mensurational tools available to the forest manager for inventory, growth and planning. Our goal is to improve the understanding and application of mensurational tools and methods in sustainable forest management for the practicing forest manager. Regional average site curves, taper models and growth models are no longer sufficient. Economically, environmentally and scientifically these regional methods and models must be locally calibrated, tested and applied for each major watershed, tree farm and reservation. We are demonstrating a non-parametric orthogonal structure that supports and encourages further research, development and localization of mensurational tools and methods. You will benefit by participating in this workshop.

There has never been a workshop of this technical depth and integration offered in the West prior to this. Participants are expected to be well versed in biometric principals and silvicultural dynamics of coniferous forests.

Instructor: James D. Arney, Ph.D., developer of four distinctly different growth models (including FPS) and principal investigator to build and calibrate models for over thirty tree species in six western States in the past forty years. Over 20,000 research plots and 15,000 felled-trees have been analyzed.

Travel and Hotel Logistics:

The Sheraton Airport Hotel (503) 281-2500 is located near the Portland International Airport. They provide an airport shuttle service. Ask for reservations for Forest Biometrics Workshop. Max light-rail is connected to the airport, downtown Portland and other hotels.

Registration fee: \$650 (includes software tools & documentation) for FBRI Contributors.
\$4,500 (includes software tools & documentation) for non-FBRI Contributors.

Contact: Western Forestry & Conservation Association (503) 226-4562
4033 SW Canyon Road
Portland, OR 97221

Richard@westernforestry.org

Or: Sign up at www.forestbiometrics.com/FORM_Orders/orders.html

Because of our desire to maximize discussion, understanding of principals and application of software tools; the capacity of the workshop is limited to twenty-four participants. Registration capacity is determined on a “first-come / first paid” basis.

FPS Calibration Workshop Schedule:

Monday

10:00-12:00 *Introduction to FPS Architecture and Species Libraries*
Introduction to growth model structures using non-parametric models
No software modification of the Forest Projection System (FPS) is necessary
Design and intent of the external Region / Species Libraries
“What are” and “Why use” non-parametric models and orthogonal stratified datasets
Basis for FPS Library structure and field-sampled dataset structures
Take home software for managing the FPS Species Libraries
Tree Record System (TRS) databases for building / testing FPS Libraries

12:00 – 1:00 *Break for lunch*

1:00-5:00 *Validating and Calibrating Static Parameters*

Field Methods for determining Taper Class and Taper Profiles
Verification and Modification of the Taper Class Access Table
Verification and Modification of the Taper and Bark Profiles
Field methods for determining Site Index (Level) and Shape
Components of growth capacity – micro, macro and mega-site rates
Soil/Site relationships – grow days, elevation, precipitation, soils
Building, updating and verifying the SiteGrid GIS layer
Validation and Calibration of early Silvicultural Effects
How to Collect and Display Regeneration Survey Data
Using “Free-to-Grow” Site Preparation as a reference point
Height Growth Calibration for Early Silvicultural treatments
Survival Rate Calibration for Early Silvicultural treatments

5:00 pm *Break for the evening (no agenda)*

Tuesday

8:00-10:00 *Growth dynamics – Permanent plot requirements – Dbh, Height, Size, Maps*
Tree measurement thresholds, plot dimensions, plot layout
Orthogonal stratifications from SiteGrid and relationships to existing plots
Number of permanent plot locations and distributions, length of re-measurement periods
Understanding and Applying the Tree-Size / Growing-Space matrix
Critical Importance of basis for length of growth interval for model calibration

10:00 – 12:00 *Growth Steps – basis for length of re-measurement interval*

Basis for the mega-growth step and conversion to relative increments
Orthogonal parameters for growth and mortality – relative size and density
Building, testing and verifying the individual tree diameter increment
Building, testing and verifying the individual tree height increment
Building, testing and verifying the individual tree mortality rates

12:00 – 1:00 *Break for lunch*

1:00 – 5:00 *Methods of comparing growth projections to research plots*

Tree by tree comparison methods (masked by frequency)
Orthogonal matrix trends within cells of the size by density arrays
Description and Use of the Bias Adjusters in the Species Library
Number, Location and Longevity of permanent plots in the orthogonal matrix
Ranking major species and existing plots by tolerance and region
Relationship of SiteGrid Research Installations to Other Programs
Minimum Length of Observation for Tree List Model Validation
Philosophical Look into the Future of Modeling...
The Role of the Forest Biometrics Research Institute

5:00 pm *Break for the day and adjourn*

Registration For The Modeling Concepts & Calibration Workshop

November 14 - 15, 2011

Sheraton Airport Hotel at the Airport, Portland, Oregon (503) 226-4562

Forest Biometrics Research Institute Members: The registration fee is U.S. \$650.00 if pre-registered; or U.S. \$675.00 if payment is later than 10 days prior to the 3-day Workshop.

All Others: The registration fee is U.S. \$4,500.00 if pre-registered; or U.S. \$4,525.00 if payment is later than 10 days prior to the 3-day Workshop. See our Web Page for explanation of costs.

Please make all checks payable to Forest Biometrics Research Institute. Registration includes Calibration Software on CD-ROM, Textbook, sample datasets, lunches and all coffee breaks.

- * One Form per Registrant per Workshop. Please copy as needed.
- * All Payments in U.S. Funds. No refund, if canceled within seven (7) days of Workshop.
- * Each Class is limited to 24 participants - first come and paid-in-full prior to Workshop.

Yes, I will attend the Calibration Workshop. Please enroll me. Enclosed is my application.

Name _____ Phone: _____

Affiliation _____ E-Mail: _____

Address _____

City _____, Province/State _____, Postal Code/Zip _____

Check enclosed _____; Purchase Order No. _____

Questions? Call (503) 226-4562 * E-Mail: Richard@westernforestry.org

Return to:
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You may also register on-line using our web site at www.forestbiometrics.com and going to the Workshop / Orders page. Full details are available there.

The next available Calibration Workshop is currently scheduled for November 2012.