WFCA FBRI Forest Biometrics Research Institute

Fundamentals and Best Practices for Forest Inventories

Building the Best Inventory for any Silvicultural System in any Geographic Area

May 7, 2019 • Olympia, Washington

Fundamentals and Best Practices for Forest Inventories

Impact of Silvicultural Systems – Clearcut, Seed-Tree, Shelterwood or Selection Harvest

Sponsored by: **Western Forestry and Conservation Association** *and* **Forest Biometrics Research Institute**

Agenda

8:00 *Building Blocks of Sound Inventory Design*

1. What is a working forest inventory? The evolution over 30 years from strata averages and yield tables to individual stand structures within strata.
2. Why you should be cruising for inventory versus harvest. Your cruising objective is to capture silvicultural growth capacity and setup the ability to re-merchandize as markets change.

8:30 *Sample Designs – Strata*

1. Stratifying the whole forest – What are the right classifications and levels of strata?
2. Breaking the strata into unique stand polygons – Why we need unique stand identification.
3. Sampling stands within each strata for cruising – Getting the right distribution, intensity and frequency of sampling and working with riparian buffers and setasides.

10:00 **Break**

10:20 *Sample Design – Plots*

1. Distributing your plots across the entire stand – Why this makes a difference.
2. Including small tree frequencies to define density.
3. How large tree frequencies define silvicultural options and asset values.
4. Defining clumpiness with systematic spatial plot patterns to quantify the impact on yield capacity.
5. Determining the right plot frequency and distribution within each stand.

12:00 **Lunch**

1:00 *Sample Design – Trees*

1. Sampling all trees of all species and sizes within each stand makes a difference.
2. Applying a combination of prism-sweep and fixed area plot designs for sampling.
   - A. Tally frequencies by species and size class, never by species alone.
   - B. When and why to record tree condition and vigor class in cruise design.
   - C. Methods for selecting large trees height samples – why this makes a difference.
   - D. Estimating live crown length and percent defect in large trees.
   - E. When and how to measure taper.
   - F. When and why to measure age
3. How to use a 1/20th acre fixed area circular plot for standing dead trees.
4. Sampling down woody material using a minimum 100-foot transect line.

2:00 **Break**

2:20 *Cruise Compilation Methods*

1. Compiling each stand cruise versus compiling by strata – within and between stands.
2. Height estimation methods – why tree heights vary with silviculture.

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3:30 *Expanding the Cruise to Un-sampled Stands*

1. Assigning a stand structure to un-sampled stands from an average tree list generated from sampled stands – when and why these methods are important to understand and use.
2. Do's and don'ts of cruise expansions – methods, timing, frequency and assumptions.

4:15 *Year-end Updates and Reporting – Getting the Sequence and Components Right*

1. Incorporating all new harvest units, deletions, acquisitions and boundary adjustments in a GIS stand polygon layer.
2. Updating the GIS road network and road class buffer widths.
3. Updating the GIS stream courses and riparian buffer widths.
4. Updating all administrative, silvicultural and operational costs.
5. Running reports for year-end harvest volume and value reports.
6. Growing stands for one year from the previous year for annual growth reporting.
7. Updating the inventory with all new cruises from all sampled stands within current year – identifying the actual impact of new information.
8. Producing forest-wide reports of new current standing forest inventory.

5:00 **Adjourn**

About the Speakers

Dr. James Arney brings over fifty years of forest biometrics industrial experience touching every aspect of inventory design, growth & yield, and harvest planning in six western States and three Canadian Provinces. He has designed in-place inventory systems, calibrated yield models for over twenty (20) tree species, developed site index curves, taper models, managed GIS systems and staff, developed hydrographic, soil and wildlife databases and prepared and presented sustained yield plans for public and private organizations through the western North America. He has developed silvicultural regimes and forest management plans for almost every major species and forest type found in the American Northwest.

Dr. Arney is the only forest biometrician who has designed and built four separate and unique computerized forest growth models (PhD. Dissertation distant-dependent whole tree (1969), USFS-Weyerhaeuser distant-dependent (1975), SPS distant-independent (1981), and FPS distant-dependent (1995)). Both SPS and FPS have been distributed world-wide and represent the most-used, integrated forest management tool set for forest inventory and silvicultural planning on "working forests" in the western United States.

Jim is currently president of the Forest Biometrics Research Institute in Portland, OR

Brock Purvis received a B.S. in Forest Management from Oregon State University in 2003. Following graduation, Brock worked for a timber company in southwest Oregon before taking a job with Northwest Management Inc. (NMI) in 2005. Brock is currently a partner with NMI and manages the inventory department. In this role, Brock is responsible for the administration, development, implementation and quality assurance of forest inventory projects for NMI. He has considerable experience in forest inventory sampling design to characterize the forest vegetation in an efficient and statistically reliable manner. In addition, Brock is responsible for growth & yield modeling for NMI's clients. In 2015, NMI partnered with Forest Biometrics Research Institute (FBRI) to provide technical support services for the Forest Projection and Planning System Software (FPS).

Dr. Dan Opalach is currently Senior Forest Biometrician with the Forest Biometrics Research Institute. He spent the first 28 years of his career working for Green Diamond Resource Company on the North Coast of California developing forest inventories, silvicultural prescriptions, and management plans for their 2nd and 3rd growth redwood and Douglas-fir stands. Looking for new adventures and challenges, Dan retired from Green Diamond, moved to Redding and started his own consulting business where he assists timberland owners with their forest inventories, management plans, and timberland appraisals. He also teaches silviculture during the winter semesters at Shasta College in Redding. Dr. Opalach is Registered Professional Forester (RPF) No. 2459 in the state of California.

A Free Feature With Your Workshop Registration

All workshop attendees will be offered free post-workshop one-on-one consultation with the session speakers, either over the phone, via email or remote desktop sharing. This workshop will cover many topics and if you get back to your office with questions about any of the workshop content, the session speakers will provide one-on-one consultation on any inventory issue. This offer is open only to workshop attendees, will expire on July 31, 2019 and the session speakers reserve the right to limit the amount of consultation.

An Additional Feature With Your Workshop Registration

All workshop attendees will receive a workbook providing the background and more details on each workshop topic. This book can serve as your office reference manual as you design and manage your inventory system.

Fundamentals and Best Practices for Forest Inventories

REGISTRATION

NAME _____

ORGANIZATION OR AFFILIATION _____

ADDRESS _____

_____

CITY, STATE, ZIP _____

EMAIL _____ TEL _____

Please List Any Special Dietary Needs: _____

REGISTRATION

Forest Inventory 2019

ON or BEFORE 5/1/2019 $275 _____

AFTER 5/1/2019 $345 _____

Call: 503-226-4562
or melinda@westernforestry.org

Western Forestry and Conservation Association
4033 SW Canyon Rd. • Portland, OR 97221
503-226-4562 or FAX: 503-226-2515

PAYMENT METHOD

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4. **Register at www.westernforestry.org**

May 7, 2019 • Olympia, WA

Workshop Location:

The session will be held at the Hotel RL, 2300 Evergreen Park Dr SW, Olympia, WA 98502, (360) 943-4000

Lodging Information:

Reduced rate lodging is available at the Hotel RL by calling 800-733-5466 and mentioning Western Forestry and Conservation. The rate for a single room is $103.00 plus tax. After April 15, 2019, reduced rates will be subject to availability.

Registration and Cancellations:

The registration fee is $275 if received by May 1 or $345 if received after 5/1/19. The registration fee includes a book of speaker materials, lunch and refreshments. Checks should be made payable to Western Forestry and Conservation Association. Purchase orders, VISA/MasterCard, and American Express are accepted. Tax id # 930-331-712. No refunds for cancellations within 1 week of session, but substitutions are always welcome.

Society of Western Foresters CFE Credits:

By attending the workshop, participants will be eligible for CFE hours in Category 1 through the Society of American Foresters.

Registration Questions?

Call Melinda at (503) 226-4562 or melinda@westernforestry.org

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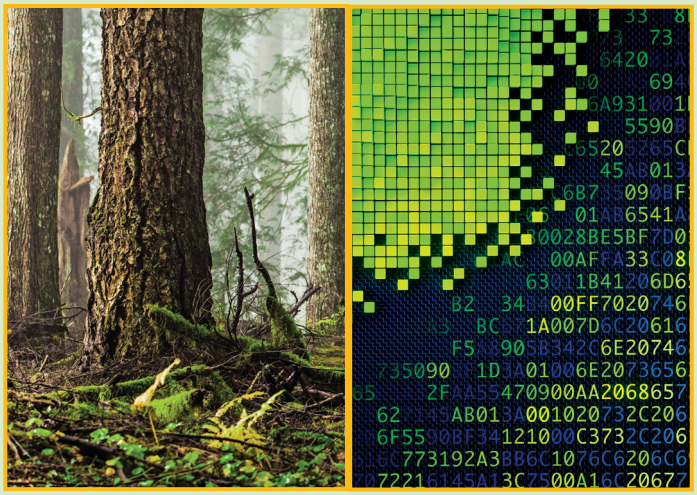

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