



Aaron R. Weiskittel, Ph.D.

Associate Professor of Forest Biometrics and Modeling and Irving Chair of Forest Ecosystem Management, School of Forest Resources, University of Maine

Cooperating Scientist, Growth and Yield Program

Researcher, Sustainability Solutions Initiative

Profile:

Aaron Weiskittel is an Associate Professor of Forest Biometrics and Modeling with the University of Maine's School of Forest Resources. He is also the University's Irving Chair of Forest Ecosystem Management. Weiskittel's work primarily seeks to develop empirical and process-based models to predict biomass growth and yield across a range of forest types. These models can be used to forecast changes in biomass due to varying silvicultural regimes, changes in annual weather patterns, and the interaction between these factors.

Weiskittel's Maine-focused research looks at the various factors that influence regional forest structure and composition in the hope of being able to forecast future changes. His research attempts to understand the biophysical factors influencing forest growth and to integrate those factors with other economic, climate, and sociological models. To date, his research team has compiled an extensive database of permanent forest growth research plots that range from southern Maine to Newfoundland and from the 1950s to the present day. This database is being used to develop various models for forecasting future forest productivity, projecting growth under various management regimes, and predicting forest sensitivity to future changes in climate.

In addition to his research with the School of Forest Resources, Weiskittel is part of the People, Landscape and Communities (PLACE) SSI team. The team is studying the concerns and needs of small landowners in Maine who collectively own more than a third of the state. The PLACE team seeks to address the concerns of small landowners and improve connections among these landowners and policy makers, resource managers, and businesses.

Weiskittel is the recipient of multiple research grants including a National Institute of Food and Agriculture (NIFA) project titled "Carbon Dynamics and Forest Management: A Retrospective Analysis and Projection of Land Use, Climate Change, and Natural Disturbances in Northeastern Forests" and a NASA project on "The Acadian Forest and Climate Change: Analyzing Shifting Species Distributions and Effects to the Carbon Balance." He has been published in multiple peer-reviewed journals including Forest Ecology and Management, Northern Journal of Applied Forest Research, Forestry, and New Forests. He is also the primary author of the textbook "Forest Growth Yield and Modeling."

Degrees:

Oregon State University, Ph.D. (Forest Growth and Yield Modeling)

Oregon State University, M.S. (Quantitative Silviculture)

The Ohio State University, B.S. (Natural Resources – Forestry)

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Research Interests:

Statistical and Mechanistic
Forest Growth Modeling

Applied Statistical and Mecha-
nistic Forest Growth Modeling

Applied Statistics

Influence of Climate Change
on Forests

Sustainable Forest Manage-
ment



Media Expertise:

Forestry
Forest Management
Climate Change
Forest Sampling and
Statistics

SSI Projects:

People, Landscape and
Communities (PLACE)

Student

Opportunities

M.S. and Ph.D. Graduate
Research Assistantships

Courses:

SFR 205: Forest Measurements and Statistics
SFR 402: Advanced Forest Measurements and Modeling
SFR 475: Advanced Biometrics
SFR 601: Forest Mensuration Problems

Selected Publications:

A.O. Finely, S. Banerjee, A.R. Weiskittel, C. Babcock, and B.D. Cook, "Dynamic Spatial Regression Models for Space-Varying Forest Stand Table," *Environmetrics* (2014, in press).

H. Jiang, P.J. Radtke, A. Weiskittel, J. Coulston, and P.J. Guertin, "Climate and Soils-Based Models of Site Productivity in Eastern U.S. Tree Species," *Canadian Journal of Forest Research* (2014, in press).

A.S. Nelson, R.G. Wagner, A.R. Weiskittel, and M.R. Saunders, "Effects of Species Composition, Thinning Intensity, and Shade Tolerance on Vertical Distribution of Leaf Area Index in Juvenile Stands in Maine, U.S.A.," *European Journal of Forest Research* (2014).

A.S. Nelson, A.R. Weiskittel, M.R. Saunders, and R.G. Wagner, "Development and Validation of Small-Diameter Aboveground Biomass Equations for Naturally-Regenerated and Planted Tree Species in Eastern Maine," *Biomass & Bioenergy* 68 (2014): 215-227.

M.B. Russell, A.R. Weiskittel, and J.A. Kershaw, "Comparing Strategies for Modeling Individual-Tree Height and Height-to-Crown Base Increment in Mixed-Species Acadian Forests of Northeastern North America," *European Journal of Forest Research* 133 (2014): 1121-1135.

C. Colgan, B. McGill, M.L. Hunter, and A. Weiskittel, "Managing the Middle Ground: Forests in the Transition Zone between Cities and Remote Areas," *Landscape Ecology* 29 (2014): 1133-1143.

R. Hayashi, A. Weiskittel, and S. Sader, "Assessing the Feasibility of Low-Density LiDAR for Stand Inventory Predictions in Complex and Managed Forests of Northern Maine," *Forests* 5 (2014): 363-383.

A.S. Nelson, A. Weiskittel, and R.G. Wagner, "Development of Branch, Crown, and Vertical Distribution Leaf Area Models for Contrasting Hardwood Species in Maine, USA," *Trees* 28 (2014): 17-30.

M.M. Bataineh, L. Kenefic, A. Weiskittel, R. Wagner, and J. Brissette, "Influence of Partial Harvesting and Site Factors on the Abundance and Composition of Natural Regeneration in the Acadian Forest of Maine, USA," *Forest Ecology and Management* 306 (2013): 96-106.

L.V. Gagné, A. Genet, A. Weiskittel, and A. Achim, "Assessing the Potential Stem Growth and Quality of Yellow Birch Prior to Restoration: A Case Study in Eastern Canada," *Forests* 4 (2013): 766-785.

M.B. Russell, A.R. Weiskittel, and J.A. Kershaw, "Benchmarking and Calibration of Forest Vegetation Simulator Individual Tree Attribute Predictions Across the Northeastern U.S." *Northern Journal of Applied Forest Research*, 30 (2013): 75-84.

M. Bataineh, R.G. Wagner, and A.R. Weiskittel, "Long-Term Response of Spruce-Fir Stands to Herbicide and Precommercial Thinning: Observed and Projected Growth, Yield, and Financial Returns in Central Maine, USA," *Canadian Journal of Forest Research* 43 (2013): 385-395.

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