Estimating Canopy Cover from Standard Forest Inventory Measurements in Western Oregon
Anne C.S. McIntosh, Andrew N. Gray, and Steven L. Garman
now appearing in *Forest Science*, April 2012

The authors compared field-based measures of percent canopy cover with estimates from aerial photography with equations of individual tree crown width and crown overlap used in the USFS Forest Vegetation Simulator (FVS) equations and with models they developed from standard stand-level forest mensuration estimates. Estimates using aerial photos were poorly correlated with field-measured cover, especially in wet hardwood and dry hardwood stands. FVS equations underestimated cover by 17% at high cover levels in wet conifer and wet hardwood stands. The authors also developed predictive models of canopy cover for three forest groups (wet and dry hardwood and wet conifer) sampled by the FIA program in western Oregon. Predictions by the models were within 15% of measured cover for 82% of the observations.

Influence of Site Preparation on Natural Regeneration and Understory Plant Communities within Red Pine Shelterwood Systems
Anthony D’Amato, John Segari, and Daniel Gilmore
upcoming in the *Northern Journal of Applied Forestry*, June 2012

The effects of four site preparation treatments on red pine (Pinus resinosa) regeneration and understory composition were examined within a red pine shelterwood in northern Minnesota. Treatments were applied following the establishment cut and included underburning, herbicide, mechanical mulching, and mechanical mulching + herbicide treatments. Natural red pine regeneration was most abundant in mechanical only and mechanical + herbicide treatments 5 years after treatment application. Ordination and indicator species analysis of the understory communities revealed distinct understory assemblages corresponding to each treatment. Overall, densities of shrub species did not change following underburning but were reduced by all other treatments. Findings from this work indicate that viable site preparation treatments exist for securing natural red pine regeneration within shelterwood systems, thus providing an alternative or supplement to artificial regeneration.

Evaluating Forest Vegetation Simulator Predictions for Southern Appalachian Upland Hardwoods with a Modified Mortality Model
Philip J. Radtke, Nathan D. Herring, David L. Loftis, and Chad E. Keyser
now appearing in the *Southern Journal of Applied Forestry*, May 2012

Prediction accuracy for projected basal area and stem density was assessed for the Forest Vegetation Simulator Southern Variant (FVS-Sn). Comparison data for FVS-Sn predictions were compiled from 1,780 permanent inventory plots in upland hardwood forests in the Southern Appalachians. Over a 5-year projection interval, FVS-Sn predictions fell within 15% of observed values for over 88% of test plots. Modifications to FVS-Sn included refitting the background mortality equation using logistic regression. Following modification, FVS-Sn accuracy statistics increased to 91 and 94% for basal area and trees per acre, respectively. In plots with high initial stand densities, accuracy gains were achieved by relaxing thresholds that activated density-dependent mortality. Detailed accuracy results for forest types of the region were generated. Twenty-five-year projection results show size-density trajectories consistent with the concept of maximum stand density index.

Comparison of Floristic Diversity between Young Conifer Plantations and Second-Growth Adjacent Forests in California’s Northern Interior
Cajun E. James, Bruce Krumland, and Dean Taylor
now appearing in the *Western Journal of Applied Forestry*, April 2012

There is concern that intensive even-aged forest management in conifer plantations has resulted in the decline of plant species diversity and contributed to the rise of invasive species in western forests. This 3-year study assessed plant species richness, composition of vascular plant species, and presence of rare and nonnative plant species in 73 survey units on industrial forestland. Survey units were evenly divided between conifer plantations and adjacent managed uneven-aged forests in three regions of northern California. The authors surveyed two forest types: mixed conifer and true fir. There was no significant difference in species richness between plantations and adjacent forests. Plantations tended to be richer in forbs and graminoids, while forests were richer in trees and shrubs. Rare plant species were almost equally distributed between plantations and adjacent forests.