2008 Student Poster Awards

The SAF Forest Science and Technology Board instituted the Student Poster Award at the SAF 2002 National Convention to encourage students to present their research that helps answer the questions foresters ask every day. All interested undergraduate and graduate students who are the primary author of the poster are eligible for the award. The top three student posters are selected based on originality, understandability, and presentation.

1st Place

Amanda M. Garcia (amg36@nau.edu)
Northern Arizona University

Effects of Fire Seasonality and Severity on the Susceptibility and Resistance of Pinus ponderosa to Bark Beetles
Amanda M. Garcia, Northern Arizona University; Rich Hofstetter, Northern Arizona University; and Sheri Smith, US Forest Service, Forest Health Protection, R5

The structure and function of ponderosa pine forests have been highly modified from their presettlement conditions by fire exclusion, logging, and heavy grazing. Thinning and prescribed burn treatments are being implemented to reduce the likelihood of stand-replacing wildfires and to reduce the threat of unacceptable levels of bark beetle-caused tree mortality. Little information is available on how bark beetles will respond to the increased use of fire; in particular how fire seasonality and fire severity will alter host resistance to bark beetles (Coleoptera: Curculionidae: Scolytinae). We investigated how host tree resistance (resin yields) responded to the manipulation of fire seasonality and severity following spring and fall prescribed burns in eastside pine stands on three national forests in northern California. Burn season and burn severity (measured by crown scorch) both significantly influenced resin yield in ponderosa pine trees post-fire. Trees burned in the fall (October) had higher resin yields compared to trees prescribed burned in the spring (May) or unburned. An additional, fire-injured trees (crown scorch) had higher resin yields compared to unburned trees. Higher resin yields may equate to increased resistance to increased attacks by bark beetles post-fire. This work is part of a M.S. thesis by Amanda Garcia and results are preliminary.

2nd Place

Donna Peppin (donna.peppin@nau.edu)
Northern Arizona University

Northern Arizona Native Plant Materials Market Feasibility Study
Donna Peppin, Northern Arizona University School of Forestry; Peter Fulé, Northern Arizona University School of Forestry; Janet Lynn, Ecological Monitoring and Assessment Program and Foundation

Large-scale disturbance events, such as wildfire, drought, and invasive species, all of which have been associated with climate change, continue to increase throughout the Southwest. The need to restore the resulting disturbed lands has created a large demand for locally adapted native plant materials. At the present time, there is a minimal supply of these native plant materials needed to meet this current demand. Meanwhile, millions of federal, state, tribal, and private dollars are spent annually on non-local genotype plant materials. The Northern Arizona Native Plant Materials Market Feasibility Study investigated the feasibility of creating a native plant materials market within the northern Arizona region. Web-based surveys and a comprehensive analysis of burned area emergency rehabilitation data, published research, and information from governmental agencies and other organizations were used to identify and analyze current and future native plant material needs and concerns. Results indicated a remarkable increase in the amount of dollars spent annually on native plant materials. Web-based surveys included 37 out of 42 respondents for the demand survey (88% response rate) and 33 out of 39 respondents to the supply survey (85% response rate). Survey results revealed that the knowledge and tools necessary to initiate a native plant materials market are available, but inadequate funding sources and information sharing hinder its development. This study provides the northern Arizona background information necessary to initiate a native plant materials market. By stimulating economic development opportunities focused on supplying locally adapted native plants and seed, this project is important not only to the economic future of Arizona, but to the environmental health of our state’s diverse ecosystems. We hope that our study will be used as a model to expand the native plant materials market to other regions throughout the state of Arizona as well as to areas outside the state.

3rd Place

Prakash Nepal (pnepal@cfre.msstate.edu)
Mississippi State University

Financial Trade-Offs Associated with Sequestering Carbon Dioxide in Standing Timber and Wood Products Harvested from Loblolly Pine Plantation
Prakash Nepal, Robert Grala, and Donald Grebner, Mississippi State University

An analysis was conducted to determine quantities of carbon dioxide sequestered in standing timber and wood products harvested from a loblolly pine (Pinus taeda L.) plantation in Mississippi. Tree growth, harvests, and quantities of sequestered carbon dioxide were simulated for loblolly pine plantations up to 50 years on a medium quality site (site index index 105, base age 50) in the Interior Flatwoods Region of Mississippi using the Forest Vegetation Simulator developed by the US Forest Service. Three different management scenarios were evaluated: maximization of revenue from timber production, maximization of revenue from increased carbon sequestration, and maximization of revenue from both timber production and carbon sequestration. Optimal harvest ages and associated financial returns were determined for each management scenario and selected silvicultural treatments. Management of a pine plantation for increased carbon sequestration resulted in significantly longer harvest age (50 years) when compared to management for timber (30 years). A thinning scheme based on a residual basal area target of 70 square feet per acre and thinned from below with a minimum thinning interval of 5 years had a significant impact on the quantity of sequestered carbon and generated returns. An unthinned plantation managed for increased carbon sequestration more than doubled the amount of accumulated carbon both in standing timber and harvested wood products. In most cases, it also generated more revenue than an unthinned plantation managed for timber. A pine plantation managed simultaneously for both timber and carbon sequestration generated the greatest financial returns.