

Delayed mortality of eastern hardwoods – a function of fire behavior, site, or pathology?

Thomas A. Waldrop and Daniel A. Yaussy

Team Leader, Southern Research Station, 233 Lehotsky Hall, Clemson, SC 29634-0331
and Project Leader, Northern Research Station, 359, Main Rd. Delaware, Ohio 43015, USA

Waldrop, Thomas A.; Yaussy, Daniel A. Delayed mortality of Eastern hardwoods after prescribed fire. 2nd IAWF meeting, Destin FL

Several hardwood-dominated study sites throughout the Southern Appalachians and the Ohio Hills have received prescribed burns for various management objectives. Increased first-year post-treatment mortality of overstory trees (DBH>4 cm) was expected in the units receiving prescribed fire. What was not expected was that these units displayed increased mortality in trees of all size classes for up to 4 years post-treatment. The likelihood of mortality was related to prior tree health, species related bark thickness, and first order fire effects. Site quality, based on moisture availability, had no effect on mortality. Prior to treatment, all sites were unmanaged and competition for resources was stressing the trees. The additional stress due to cambial damage caused by the heat of the fires possibly put the trees at greater risk for opportunistic secondary agents of mortality, such as fungal attacks or insect infestations. This study indicates that monitoring the first-year post-treatment effects of a prescribed burn or wildfire may not afford an accurate assessment of the effects on the overstory. The study also suggests that managers should consider tree health when making fire prescriptions for hardwood stands.