

RED MAPLE (*ACER RUBRUM*) RESPONSE TO PRESCRIBED BURNING ON THE WILLIAM B. BANKHEAD NATIONAL FOREST, ALABAMA

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Prescribed burning is part of Land and Resource Management Plans on National Forest System lands throughout the southeastern United States, and is sometimes implemented to achieve a desired future condition of oak-dominated forest or woodland habitat. However, effects of burning on oak (*Quercus* spp.) competitors, such as red maple (*Acer rubrum* L.) are not well understood. In this study, we documented red maple seedling and sapling response to prescribed burns at both large (stand-level) and small (0.01-acre plot level) scales, and we examined relationships between fire behavior and red maple response. The study was implemented in 2005 within a larger replicated silvicultural study on the William B. Bankhead National Forest in Lawrence County, AL. At the stand-level scale, prescribed burning had no effect on red maple sapling mortality, sprouting, or diameter growth in the largest size class (1.5- to 5.4-inch diameter at breast height [d.b.h.]). Burned stands showed a significant increase in red maple seedlings (< 4.6 ft height) and a significant decrease in small saplings (> 4.5 ft height, < 1.5 inch d.b.h.) compared to unburned stands. At the plot-level scale, neither maximum recorded temperature or heat index (duration of temperature > 90 °F) of the fire could significantly explain the variation in sapling density changes, sapling sprouting occurrence, sapling diameter growth, or changes in seedling density. Results indicate that one dormant-season prescribed burn was not effective at decreasing oak competition of red maple in the midstory but did increase red maple competitors in the understory.
