

REHABILITATION OF AN UPLAND HARDWOOD FOREST USING PRESCRIBED FIRE AND HERBICIDE

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Many upland hardwood forests have been degraded due to improper management (high-grading) or insect/disease outbreaks. The absence of periodic fires has changed the forest composition to a higher proportion of undesirable shade-tolerant species. Some desirable species such as oaks have declined. Methods are needed to rehabilitate these forests by encouraging the regeneration and growth of desirable tree species and controlling undesirable species. The application of prescribed fire and herbicide are being evaluated in an Ozark upland hardwood forest in northwestern Arkansas. In a landscape where the wildland-urban interface is expanding rapidly, concern is increasing with respect to the use of herbicides and fire as management tools. The advantages and limitations of each method must be understood so that appropriate recommendations can be made for specific situations. In this study, treatment plots were left alone, burned in the spring, treated with Chopper[®] herbicide in the fall to kill undesirable trees, or treated with both fire and herbicide. Fire intensity on the burned plots was measured with Tempilaq[®] (Tempil, South Plainfield, NJ) temperature-indicating liquids applied to metal tags, and varied widely depending on available fuels. Fire intensity (temperature) can be related to the understory kill of small-diameter stems and subsequent regeneration of desirable species. Early observations indicate successful control of larger stems by herbicide, while burning may only temporarily control sprouting and growth of small undesirable stems. Prescribing repeated burns, or applying herbicide, might achieve the desired result of restoring a significant oak component to these forests.

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