

USING PRESCRIBED FIRE AND MECHANICAL THINNING TO IMPROVE THE REGENERATIVE POTENTIAL OF OAK SPECIES

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Historical evidence and ecophysiological characteristics indicate a strong link between disturbance regime and the occurrence of oak (*Quercus*) species. Research indicates that many current oak forests developed following disturbances such as logging, fire, or a combination of logging and fire from the 18th century to the early 20th century. However, during the early and mid-20th century, many oak forests were entered for the last time and fire and cutting ceased. This resulted in the development of several cohorts of mixed mesophytic species, which are poised to replace the overstory with the next disturbance. To counter this, managers are being encouraged to use prescribed fire to improve the regenerative potential of oaks. These fires encourage prolific sprouting of oak trees while limiting the growth of many oak competitors such as sugar maple (*Acer saccharum*), red maple (*Acer rubrum*), American beech (*Fagus grandifolia*), yellow-poplar (*Liriodendron tulipifera*), and black cherry (*Prunus serotina*). In addition, oak seedlings develop slowly in the low light of a closed overstory and thick understory. Increased light improves growth of oak species but it also encourages the growth of competing vegetation. Prescribed fire has been viewed as an effective tool to limit competing vegetation and improve the growth and form of oak regeneration in thinned versus unburned areas. In a study in the Shawnee Hills region of southern Illinois in the spring of 2003, the benefits of prescribed burning, mechanical thinning, and a combination of the two were examined. This poster includes the results of this study and implications for current and future silvicultural recommendations.

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