

# ESTABLISHING PIN OAK REPRODUCTION IN BOTTOMLAND FORESTS IN SOUTHEASTERN MISSOURI

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## ABSTRACT

In pin oak (*Quercus palustris* Muenchh.) bottomland forests in southeast Missouri, we revisited clearcuts, shelterwood harvests, and controls within the Mingo Basin. Seventeen years later, we found significant changes, in both the change in basal area and changes in trees per acre for each of the species and genera present.

We compared pretreatment midstory tree species' conditions with their mortality following a dormant season herbicide injection. Tree mortality rates varied significantly by species. Models developed suggest that green ash and American elm (*Ulmus americana* L.) trees were effectively deadened by the midstory treatment, and sweetgum (*Liquidambar styraciflua* L.) and red maple trees were not deadened effectively.

We compared the survival and growth of underplanted pin oak acorns, bareroot seedlings, and RPM® container seedlings in plots that were thinned with and without ground flora control. After one growing season, we found that RPM® container seedlings had the greatest survival followed by bareroot seedlings. Survival of planted stock was similar to natural reproduction. Direct-seeded seedlings had the poorest survival. Diameter growth of planted stock was significantly less than that of direct-seeded or natural stock; height growth of bareroot stock was significantly less than the other stock types.