

OVERSTORY DENSITY AND ITS EFFECT ON OAK REGENERATION ABUNDANCE
AND OAK UNDERSTORY HEIGHT GROWTH IN THE MISSOURI OZARK
HIGHLANDS

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ABSTRACT

This study examined how overstory density affects regeneration abundance and understory height growth in the Missouri Ozark Highlands. Data were collected on three different treatment types, no harvest management, uneven-aged management, and even-aged management. The probability of obtaining regeneration that met height and abundance thresholds decreased with increasing overstory density for white oaks, red oaks, and non-oaks. A relatively small increase in overstory basal area significantly decreased success probabilities for the red oaks, white oaks and non-oaks. For understory growth, the probability of obtaining height growth thresholds for red oaks, white oaks, and non-oak species decreased with increasing overstory density. Height growth of red oaks, white oaks, and non-oaks were not statistically different when overstory density was increased above the clearcut level. Results suggest that regulating overstory density is necessary to control regeneration abundance and understory height growth. Reducing overstory density below the B-level on the Gingrich diagram (1967) may be necessary to allow sufficient light to penetrate the forest floor for adequate regeneration abundance and understory height growth.