

# FIRE HISTORY AND THE ESTABLISHMENT OF OAKS AND MAPLES IN SECOND-GROWTH FORESTS

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We used dendrochronology to examine the influence of past fires on oak and maple establishment. Six study units were located in southern Ohio, where organized fire control began in 1923. After stand thinning in 2000, we collected basal cross sections from cut stumps of oak ( $n = 137$ ) and maple ( $n = 204$ ). The fire history of each unit was developed from the oaks, and both oak and maple establishment were examined in relation to fire history. Twenty-six fires were documented from 1870 to 1933; thereafter, only two fires were identified. Weibull median fire-return intervals ranged from 9.1 to 11.3 years for the period ending in 1935; mean fire occurrence probabilities (years/fires) for the same period ranged from 11.6 to 30.7 years. Among units, stand initiation began ca. 1845 to 1900 and virtually no oak recruitment was recorded after 1925. Most maples established after the cessation of fires. In several units, the last significant fire was followed immediately by a large pulse of maple establishment and the cessation of oak recruitment, indicating a direct relationship between fire cessation and a shift from oak to maple establishment.

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