

NATURAL OAK REGENERATION 22 TO 35 YEARS AFTER CLEARCUTTING ON THE HOOSIER NATIONAL FOREST

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Oak (*Quercus* spp.) recruitment failure is a severe problem in the Central Hardwood forest region. The majority of studies that have examined decreases in oak abundance were conducted over a relatively short time and across a very narrow landscape. This study examines oak regeneration by revisiting a number of former clearcut stands throughout the Hoosier National Forest in southern Indiana.

Seventy-four oak-dominated stands, of various sizes (2.8 to 23.1 hectares) and landscape attributes, were harvested between 1969 and 1982. The stands were measured in 1986 and 1987 and showed a marked decrease in natural oak regeneration. The stands are currently being reassessed over a three-year period to monitor the dynamics of harvested stands by comparing current results to pre-harvest stand composition and the results of the 1986-87 measurements. Sites are currently being sampled with approximately 2.5 plots per hectare. Each plot consists of a 0.04-hectare tree tally (>2.54 cm d.b.h.) and a 0.004-hectare reproduction plot (<2.54 cm d.b.h.), similar to the previous measurement regime.

First-year results (20 stands sampled) indicate an increase in the dominant oak component since the 1986-1987 sampling, although oaks have yet to regain their former stand dominance. Prior to harvest, oaks comprised an average of 71 percent (38 trees per acre (TPA)) of the dominant trees in the sampled stands. During the 1986-1987 study, oaks represented only 8 percent (145 TPA) of the dominant trees, but now comprise an average of 20 percent (49 TPA) of the dominant trees in sampled stands.

A continued increase in the dominant oak component appears uncertain, as oaks comprise only 8 percent of intermediate and suppressed trees at this time. Preliminary results indicate that oaks may eventually regain dominant status; however, the time required for full oak representation may be greater than originally expected.