

FACTORS AFFECTING REGENERATION OF HARD MAST SPECIES IN THE CENTRAL HARDWOOD REGION



Forestry and Natural Resources

A McIntire-Stennis supported project

Forests in the eastern United States is in danger of widespread conversion from oak, a foundational species group, to more shade tolerant trees due to fire suppression, poor harvesting practices, and a variety of other factors. This shift would reduce ecological resilience and significantly change the ecological and economic services provided by these forests.

This project gained in-depth knowledge of the regeneration dynamics of both oak (*Quercus*) and American chestnut (*Castanea dentata*), a former foundational species in eastern forests. Using both the Hardwood Ecosystem Experiment and the Crane Expanding Gap studies, researchers are monitoring regeneration survival and growth after many management practices.

This research demonstrated that the blight-resistant American chestnut can be successfully reintroduced to understories in eastern deciduous forests due to its ability to thrive in shady environments. Oak, on the other hand, requires more disturbance and germinates better with assistance of scatterhoarding small mammals.

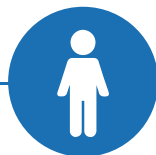


About McIntire-Stennis

The McIntire-Stennis program, a unique federal-state partnership, cultivates and delivers forestry and natural resource innovations for a better future. By advancing research and education that increases the understanding of emerging challenges and fosters the development of relevant solutions, the McIntire-Stennis program has ensured healthy resilient forests and communities and an exceptional natural resources workforce since 1962.



COLLABORATION



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The three scientific publications that came from this project included contributors from seven universities as well as the USDA Forest Service and the Canadian Ministry of Forest and Wildlife.

In this project's final year, research was presented at five conferences or educational meetings

IMPACT

Over the last 100 years, forests in the Eastern U.S. have lost or are in danger of losing several foundational tree species, including American chestnut and oak.



180

Species of birds and mammals that use oak acorns as food



35%

Oak species provided 35% of the timber sales nationally from 2013-2017



50-100 years

The Hardwood Ecosystem Experiment and Crane Expanding Gap studies are intended to last 50-100 years to monitor regeneration dynamics