

# ARTIFICIAL REGENERATION ON THE NORTH CUMBERLAND WILDLIFE MANAGEMENT AREA IN TENNESSEE

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**Extended abstract**—The primary objective of the Tennessee Wildlife Resources Agency (TWRA) forest management program is to create and maintain a healthy forest with a diversity of wildlife habitats. This goal is accomplished through a variety of silvicultural treatments which include forest regeneration, forest thinning, prescribed burning, and artificial regeneration. One challenge faced by TWRA and many land managers is the lack of oak regeneration and the loss of the oak component in regenerated stands. Artificial oak regeneration is one technique the Tennessee Wildlife Resources Agency is exploring to restore or enrich the oak component of harvested stands.

Forest inventory is the first step in creating a management plan and is the basis for silvicultural decisions. From this inventory we determine species composition, size class, basal area, trees per acre, site index, and forest health. One unique aspect of the TWRA forest management program is that we look to regenerate stands that exhibit the worst qualities such as low stocking, poor species composition, wild fire damage, and evidence of past high grading. By regenerating these stands we can produce quality early successional forest habitat for wildlife while improving forest stand quality. The problem occurs when trying to determine the best means of regeneration that will produce a stand with at least a component of oak species. Lack of oak regeneration often prohibits a silvicultural clear cut. Lack of preferred canopy trees rules out a shelterwood harvest. The lack of manpower and funding make it impossible to enter these stands repeatedly for multiple intermediate treatments.

In an attempt to address these concerns TWRA began using artificial oak regeneration. Beginning in 2006, 18 forest stands consisting of 265 acres on upland hardwood sites have been planted post-harvest with various oak species. Seedlings used were grown from local seed source and species were selected based on existing composition of surrounding stands. Seedlings were graded at the nursery prior to shipment. Planting was supervised by TWRA foresters and conducted by professional contract planters. Plantings were conducted as part of different regeneration methods such as silvicultural clear cut and shelterwood. Post planting survival checks were conducted within a year of planting with an average survival of 85 percent. Further data will be collected as part of the normal compartment reentry schedule every 10 years.

As the earliest plantings have begun to be re-inventoried, the results seem promising. In these stands the goal of establishing at least a component of oak species in stands with little to no oak regeneration has been accomplished. As more stands mature to the point of reentry, we will have a better idea of the overall success. The intent of the program was not research. The goal was to be a working example of how artificial oak regeneration may have a place on a working forest.

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