

INITIAL WILDLIFE HABITAT RESPONSES TO ALTERNATIVE FOREST REGENERATION METHODS IN THE OUACHITA MOUNTAINS

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In conjunction with phase II bird and small mammal studies, we measured an array of habitat features in 20 stands representing 4 replications of 4 pine regeneration treatments (clearcut/plant, pine-hardwood shelterwood, pine-hardwood single-tree selection, and pine-hardwood group selection) plus 4 untreated controls. At study initiation, all stands were > 60 years old, > 34.6 acres in size, located on southerly aspects, and had slopes generally < 20 percent. Stands were harvested during the summer of 1993. Habitat measurements were collected during late winter of 1995, 1997, and 1999. Here we summarize initial responses of several key wildlife habitat parameters to these five treatments.

Most habitat measurements were obtained at 30 permanent sampling points in each stand. Using plots of various sizes, we ocularly estimated percent cover of forbs, graminoids (grasses and grasslike plants combined), and woody plants, and volume of down wood with an average diameter ≥ 4 inches. Densities of snags (standing dead trees ≥ 3.28 feet tall) were tallied within 49.2-foot-wide belt transects that traversed each area and averaged 4,833 feet in total length.

None of the treatments resulted in major increases in evergreen forbs or woody plants during late winter; however, clearcut and shelterwood stands averaged four to five times

more evergreen woody plant cover than controls by the sixth year after treatment. Evergreen graminoid cover increased substantially under all regeneration treatments compared to controls. Total volume of down wood within harvested stands was consistently two or more times greater than that of control stands for all 3 sampling years. Pines and hardwoods contributed equally to down wood volumes. Snag densities decreased over time under all treatments, indicating that snag recruitment from insects, diseases, and lightning strikes is not keeping pace with natural losses. Unfortunately, 44 to 71 percent of the snags were too small [< 6 inches diameter at breast height (d.b.h.)] for cavity excavation by woodpeckers. Snags 6.0 to 13.7 inches d.b.h. may be utilized as cavity trees by smaller cavity-nesting birds, but pileated (*Dryocopus pileatus*), red-bellied (*Melanerpes carolinus*), and red-headed woodpeckers (*M. erythrocephalus*) generally require snags > 13.7 inches d.b.h. When averaged across years, total densities of 6.0- to 13.7-inch snags (pine and hardwood) ranged from 1.6 per acre (shelterwood) to 4.6 per acre (group selection), while densities of snags > 13.7 ranged from just 0.3 per acre in shelterwood stands to 0.5 per acre in group selection stands. Retention of unharvested greenbelt habitat should eventually result in higher densities of larger snags.

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