

# NORTHERN BOBWHITE POPULATION RESPONSE TO INTENSIVE MECHANICAL HARDWOOD CLEAN-UP

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## ABSTRACT

Habitat degradation for northern bobwhite (*Colinus virginianus*) has occurred in many fire-maintained pine forests of the southeastern Coastal Plain due to encroachment of undesirable hardwoods over time. This is especially true for old-field lands where the highly combustible native groundcover has been eliminated. A management technique gaining in popularity recently is the removal of these hardwoods to improve habitat conditions for bobwhites. We used radio-telemetry and plantation hunting records to measure population parameters and hunting success on 1 such property before, during, and after an intensive mechanical hardwood "clean-up." An 800-acre hunting course on Nilo Plantation near Albany, Georgia was the study area for this project and is a site where we have maintained a continuous year-round sample of radiomarked bobwhites since fall 1993, that now cumulatively totals >500. These telemetry studies have revealed that bobwhite survival and reproductive output were declining and had reached low points the year prior to the initiation of hardwood clean-up. The clean-up operation consisted of mechanical felling of most mature hardwood in the pine uplands, followed by piling with root rakes, and then burning the piles. Kaplan-Meier survival estimates prior to the clean-up were Spring-Fall (15%), Fall-Spring (37%), and annual (6%). Cause specific mortality from avian depredation for the 2 Fall-Spring periods prior to clean-up averaged 35%. Broods produced per hen alive on 15 April was 0.42. During the 2 years since clean-up was completed, survival estimates have increased 2- to 5-fold now averaging: Spring-Fall (44%), Fall-Spring (73%), and annual (34%). Broods produced per hen alive on 15 April has almost doubled to 0.72. Cause-specific mortality from avian depredation during Fall-Spring has averaged only 6%. Plantation hunting success on this course had declined to a 20-year low of 3.2 coveys/hour but has since shown an almost 3-fold increase to a record high of 9.4 coveys/hour. This intensive hardwood clean-up has certainly improved the quality of the habitat on this site. We believe it also altered the predator context there by making the environment less suitable to the bobwhite's natural enemies which contributed to the increased survival and reproductive output.

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