

Effects of Site Preparation Techniques on Breeding Bird Communities in Intensively-managed Pine Stands in the Coastal Plain of North Carolina

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Abstract: Combinations of mechanical and chemical site preparation and chemical release are used in loblolly pine plantations in the southeastern United States to manage competing vegetation and increase pine production. Few studies have described relationships among these practices, particularly multiple and mixed chemical applications, and breeding birds. Therefore, we examined the effects of six treatments of increasing intensity via combinations of mechanical (wide spacing and strip shear or narrow spacing and roller chop) and chemical (application or no application) site preparation treatments with chemical release one year after site preparation (broadcast or banded) on breeding bird communities in industrial loblolly pine plantations ($n=6$) in the Coastal Plain of North Carolina for eight years following site preparation 2002–2009. We observed that male breeding bird density and species richness was greatest in wide spacing treatments for six years following site preparation. Chemical site preparation reduced bird density in year 2, but had no effect in other years. Birds responded similarly to banded or broadcast chemical releases. Wide pine spacings may benefit breeding birds through delayed pine canopy closure and increased understory vegetation structure.

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