

**BREEDING BIRD RESPONSE TO PINE- SAVANNA AND WOODLAND RESTORATION
IN THE OZARK-OUACHITA INTERIOR HIGHLANDS**

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ABSTRACT

Pine- savanna and woodland restoration efforts have increased in the Midwest within recent years, and understanding breeding bird response to this restoration is critical for management strategies to be effective. Our objectives were to determine species density and reproductive success in relation to management type, frequency, and extent as well as the resulting vegetation from management activities. We conducted point count surveys for 19 species in restored and non-restored areas in the Ozark-Ouachita Highlands in parts of Missouri, Arkansas, and Oklahoma during the 2013-2015 breeding seasons. We estimated species density and determined relationships with management and vegetation covariates using *a priori* models. In general, densities of early-successional and generalist species were positively related, and interior-forest species negatively related to restoration. Many species had higher densities in areas with less canopy cover, tree density, forest cover, and increased fire activity. Eastern Towhee daily nest survival rate (DSR) was not related to any covariate. Prairie Warbler DSR was related only to nest stage and day of year. Yellow-breasted Chat DSR was positively related to thinning events. Eastern Wood-Pewee and Summer Tanager DSR was negatively related to mean canopy cover. Pine Warbler DSR was positively related to sapling density. Combining species into two nest-height guilds showed that shrub nesters had greater DSR in areas that had been thinned while canopy nesters had greatest DSR in areas with less basal area and less canopy cover, a result of thinning activities. We suggest that positive relationships in abundance and nesting success for most species directly and indirectly with management activities shows that pine- savanna and woodland restoration in Missouri is providing quality breeding habitat for both early-successional species and woodland generalists.