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# LANDSCAPE-SCALE GEOSPATIAL ASSESSMENT OF OPEN PINE AND NATURAL GRASSLAND CONDITION FOR NORTHERN BOBWHITE IN THE GULF COASTAL PLAINS AND OZARKS

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## ABSTRACT

The National Bobwhite Conservation Initiative 2.0 (NBCI) suggests >13 million acres of pine forests and >600,000 acres of grasslands have high potential for northern bobwhite (*Colinus virginianus*) conservation in the Southeast. The Gulf Coastal Plains and Ozarks Landscape Conservation Cooperative (LCC) identifies northern bobwhite as one of 15 indicator species for open pine/woodland/savanna and grassland/prairie ecological systems, and describes specific habitat conditions considered desirable as measurable landscape endpoints in each system as part of an Integrated Science Agenda (ISA). The ISA suggests bobwhite are limited by the habitat characteristics associated with basal area and canopy cover in pine systems, and patch size, vegetation density, bare ground, shrub cover, and warm-season grass density in grassland systems across the 180 million acre LCC. We conducted Rapid Ecological Assessments (REAs) of pine and grassland systems to describe where, how much, and in what condition the desired habitat conditions exist for each system. Using endpoint threshold values, the best available geospatial data, and a dichotomous decision tree approach, the pine and grassland REAs assigned per-pixel Condition Index Values (CIV) for the entire LCC. Results indicate 46% of the 48 million acres of pine or mixed-pine hardwood forests are in patches >600 acres with one other endpoint present, but only 0.2% (100,000 acres) reflect all desired open pine conditions. In the grassland system, 48% of the 32 million acres of grassland were characterized by the presence of at least one desired condition, with no areas meeting all desired conditions. In many cases, areas with high CIV scores overlap areas classified as high and medium land use opportunities in NBCI 2.0, suggesting continuity of these independent empirical and expert-driven assessments. Understanding the current condition of pine and grassland systems in concert with NBCI potential acreage targets can help refine management and population objectives in NBCI and LCC conservation planning.

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**Key words:** *Colinus virginianus*, desired forest conditions, ecological assessment, grassland, landscape conservation design, northern bobwhite, open pine, prairie

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