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FALL QUAIL DENSITIES ON PUBLIC LANDS IN MISSOURI: A DECADE OF MONITORING

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ABSTRACT

Northern bobwhite (*Colinus virginianus*) fall population density has been determined annually since 2005 on 19 public land areas managed by the Missouri Department of Conservation (MDC). These demonstration areas, known as Quail Emphasis Areas (QEAs), were created as part of the MDC Strategic Guidance for Northern Bobwhite Recovery: 2003-2013. Management of QEA bobwhite populations, habitat and hunting has been evaluated periodically at the area, regional and statewide scale, and the program has been perpetuated in an updated 2014-2024 Strategic Guidance. QEAs were selected to represent MDC administrative regions and are highly variable in many aspects, e.g., size range from 298 to 3,642 hectares. QEAs are managed adaptively, maximizing usable space and early-successional plant communities, with bobwhite population density and distribution, and hunting, as response variables. Fall bobwhite calling coveys are measured with point transect surveys, distributed to cover nearly 100% of each QE, coveys are flushed to estimate covey size, and density is calculated with the Distance program. Observers, mostly permanent staff, initially received rigorous training, and periodic updates. Across QEAs and years, there has been a high amount of variability in weather and habitat management, and subsequently, population responses have been equally variable, as revealed by preliminary analysis for 2005-2010: (1) Number of covey observations on a QEA in a single year ranged from 0 to 178; (2) Encounter rate (i.e., number of coveys/effort) ranged from 0-5.95; (3) Density in areas where coveys were detected ranged from 0.003 coveys/ha to 0.103 coveys/ha (covey densities not adjusted for calling rate), and from 0.006 to 0.122 coveys/ha (covey densities adjusted for Missouri-specific calling rate); and (4) Some QEAs showed consistent declines in density from 2005-2010, whereas others increased. We discuss lessons learned from this long-term, statewide effort to demonstrate effective quail management based on quantification of population response to prescribed management.

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Key words: *Colinus virginianus*, point transect surveys, public land, monitoring, Missouri, Program Distance, northern bobwhite

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