

2017

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Recommended Citation

Wood, Seth; Terhune, Theron M. II; and Martin, James A. (2017) "Evaluating the Impacts of Hunting Paths on Northern Bobwhite Survival, Economic Costs, and Hunter Satisfaction," *National Quail Symposium Proceedings*: Vol. 8 , Article 77.

<https://doi.org/10.7290/nqsp08zfpi>

Available at: <https://trace.tennessee.edu/nqsp/vol8/iss1/77>

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EVALUATING THE IMPACTS OF HUNTING PATHS ON NORTHERN BOBWHITE SURVIVAL, ECONOMIC COSTS, AND HUNTER SATISFACTION

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ABSTRACT

The amount and spatial configuration of habitat is known to influence the abundance, movements, resource use, and persistence of many species. As such, land managers must be judicious in their application of management actions to minimize its impact on wildlife while concurrently providing recreational opportunities. Mowing or roller-chopping is a common management technique implemented on intensively managed northern bobwhite (*Colinus virginianus*) plantations to increase hunter accessibility, provide travel corridors for pointing dogs, manage vegetation succession, among other benefits. Managers typically create hunting paths in a grid pattern at 30 ft spacing resulting in approximately 35% of vegetation removed prior to hunting season. However, the optimal spacing for paths is unknown and some concern exists over the presence of paths in general as they may facilitate predation. Our objectives were to determine how different densities of paths (i.e., reduced cover and increased edge) impacted northern bobwhite survival, quantify the costs per hectare of paths, and determine hunter satisfaction. We developed two path treatments (30 ft and 90 ft spacing) and a control (no paths) on Tall Timbers Research Station in Leon County, Florida. We radio-tagged a subset of northern bobwhites ($n = 150$), equally distributed within each treatment, and monitored survival in each treatment using radio-telemetry during the non-breeding season (October through April) in 2013-2016. We used Burnham's joint model within program MARK to compare survival of radio-tagged bobwhites among treatment groups. We analyzed data collected from a hand-held global positioning system used to delineate paths during creation to compute implementation cost. Hunter satisfaction was assessed using a pre- and post-hunt survey. Optimization will be used to determine which treatment achieves the greatest utility under current management objectives. Results of this research will provide managers information to make informed decisions about the implementation of hunting paths under various management scenarios.

Citation: Wood, S. W., T. M. Terhune II, and J. Martin. 2017. Evaluating the impacts of hunting paths on northern bobwhite survival, economic costs, and hunter satisfaction. National Quail Symposium Proceedings 8:281.

Key words: hunting paths, program MARK, *Colinus virginianus*, northern bobwhite, survival estimation, hunter satisfaction

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