

UNDERSTANDING THE RELATIONSHIP BETWEEN NORTHERN BOBWHITE MORTALITY AND RAPTOR MIGRATION IN SOUTH TEXAS

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ABSTRACT

The fall and spring migration routes of numerous raptor species converge in the Rio Grande Plains ecoregion of Texas resulting in a high seasonal diversity and abundance of raptors. Raptors are believed to be an important source of mortality for northern bobwhite (*Colinus virginianus*). Because of the economic importance of bobwhites and the high concentration of raptors in south Texas, we investigated the relationship between bobwhite mortality and raptor abundance. Our objectives were to document raptor diversity and abundance, correlate bobwhite mortality with raptor abundance, and correlate ambient temperature with raptor abundance. We monitored radiomarked bobwhites ($n = 164$) biweekly during September–February 2000–01 in Brooks County, Texas. We conducted raptor surveys bimonthly during October–February 2000–01 between 1100 and 1500 hours along a 24-km road. We documented a total of 96 bobwhite mortalities. Raptors accounted for 16 % of the mortalities, with 43% by mammals, 13% unknown predator, and 28% hunter. We observed a total of 310 raptors, representing 15 identified species. Red-tailed hawk (*Buteo jamaicensis*) and white-tailed hawk (*Buteo albicaudatus*) comprised a large percentage (38%) of the raptors observed. A weak correlation ($r = -0.11$) existed between raptor abundance and total bobwhite mortality. A stronger correlation ($r = 0.86$) existed between Accipiter abundance and raptor depredation of bobwhites. We detected a relatively strong negative correlation ($r = -0.65$) between raptor abundance and ambient temperature. Our limited data suggest that general raptor abundance may not be a strong indicator of actual bobwhite mortality, and that it may be erroneous to infer that a high abundance of raptors results in a high mortality of bobwhites. Understanding the relationship between bobwhite and raptors will involve determining species-specific migration timing and numbers.

Citation: Holschneider, F. R., F. Hernández, D. Rios, and J. D. Vasquez. 2002. Understanding the relationship between northern bobwhite mortality and raptor migrations in south Texas. Page 72 in S. J. DeMaso, W. P. Kuvlesky, Jr., F. Hernández, and M. E. Berger, eds. Quail V: Proceedings of the Fifth National Quail Symposium, Texas Parks and Wildlife Department, Austin, TX.