

Coates, P.S. and D.J. Delehanty. 2010. Nest Predation of Greater Sage-Grouse in Relation to Microhabitat Factors and Predators. *Journal of Wildlife Management* 74(2):240-248.

Abstract: Nest predation is a natural component of greater sage-grouse (*Centrocercus urophasianus*) reproduction, but changes in nesting habitat and predator communities may adversely affect grouse populations. We used a 2-part approach to investigate sage-grouse nest predation. First, we used information criteria to compare nest survival models that included indices of common raven (*Corvus corax*) abundance with other survival models that consisted of day of incubation, grouse age, and nest microhabitat covariates using measurements from 77 of 87 sage-grouse nests. Second, we used video monitoring at a subsample of 55 of 87 nests to identify predators of depredated nests ( $n = 16$ ) and evaluated the influence of microhabitat factors on the probability of predation by each predator species. The most parsimonious model for nest survival consisted of an interaction between day of incubation and abundance of common ravens ( $w_{raven \times incubation\ day} = 0.67$ ). An estimated increase in one raven per 10-km transect survey was associated with a 7.4% increase in the odds of nest failure. Nest survival was relatively lower in early stages of incubation, and this effect was strengthened with increased raven numbers. Using video monitoring, we found the probability of raven predation increased with reduced shrub canopy cover. Also, we found differences in shrub canopy cover and understory visual obstruction between nests depredated by ravens and nests depredated by American badgers (*Taxidea taxus*). Increased raven numbers have negative effects on sage-grouse nest survival, especially in areas with relatively low shrub canopy cover. We encourage wildlife managers to reduce interactions between ravens and nesting sage-grouse by managing raven populations and restoring and maintaining shrub canopy cover in sage-grouse nesting areas.