GREATER SAGE-GROUSE SELECT NEST-SITES AND BROOD-SITES AWAY FROM AVIAN PREDATORS

JONATAN B. DINKINS, Department of Wildland Resources, Utah State University, Logan, UT 84322-5230, USA, Email jon.dinkins@aggiemail.usu.edu, phone 406-600-4746.

MICHAEL R. CONOVER, Department of Wildland Resources, Utah State University, Logan, UT 84322-5230, USA

CHRISTOPHER P. KIROL, Department of Ecosystem Science and Management, University of Wyoming, Laramie, WY 82071, USA

JEFFREY L. BECK, Department of Ecosystem Science and Management, University of Wyoming, Laramie, WY 82071, USA

Abstract: Greater Sage-Grouse (*Centrocercus urophasianus*; hereafter "sage-grouse") distribution and abundance in western North America has declined over the last century. Depredation of sage-grouse nests and predation of chicks can be one of the most influential factors limiting their productivity. Prey species utilize anti-predation behaviors, such as predator avoidance, to reduce the risk of predation. Birds in general balance the dual necessity of selecting cover to hide from visual and olfactory predators to optimize their survival and reproductive success, which may also be achieved by selecting habitat with relatively fewer predators. We compared avian predator densities at sage-grouse nests and brood locations to random locations within available sage-grouse habitat. This comparison allowed us to assess the ability of sage-grouse to avoid avian predators during nesting and early brood-rearing. During 2008–2010, we conducted 10-min point-count surveys at 218 sage-grouse nests, 249 sage-grouse brood locations from 83 sage-grouse broods, and 496 random locations. We found that random locations had higher densities of avian predators relative to sage-grouse nest and brood locations. Sage-grouse nested in areas where there were lower densities of Common Ravens (*Corvus corax*), Black-billed Magpies (*Pica hudsonia*), Golden Eagles (*Aquila chrysaetos*), and *Buteo* hawks compared to random locations. Additionally, sage-grouse selected brood-rearing locations that had lower densities of the same avian predators as during nesting plus American Kestrels (*Falco sparverius*) compared to random. By selecting nest and brood-rearing locations with lower avian predator densities, sage-grouse may reduce the risk of nest depredation and predation on eggs, chicks, and hens.