

Hagen, C.A. 2010. Predation on Greater Sage-Grouse: Facts, Process, and Effects. *Studies in Avian Biology* No. 38, chapter 8 (in press).

**Abstract:** Although Greater Sage-Grouse (*Centrocercus urophasianus*) face a suite of predators in sagebrush (*Artemisia* spp.) communities across the species' range, none of these predators specialize on sage-grouse. Greater Sage-Grouse are susceptible to predation from egg to adult leading to the hypothesis that predator control would be an effective conservation tool for sage-grouse populations. Therefore, I reviewed the literature pertaining to predator communities across the range of Greater Sage-Grouse and assessed the effects of predation on sage-grouse life history. I then provided a framework for evaluating when predator management may be warranted. Generally, nest success rates and adult survival are high, suggesting that on average predation is not limiting. However, in fragmented landscapes or in areas with subsidized predator populations predation may limit population growth. Few studies linked habitat quality to mortality rates, and fewer still linked these rates to predation. Predator management studies have not provided sufficient evidence to support implementation over broad geographic or temporal scales, but limited information suggests predator management may provide short-term relief for a population sink. Evaluating the need for predator management will require linking reduced demographic rates to habitat quality (fragmentation or degradation) or predator populations out of the natural range of variability (exotic species or subsidized populations). Alternatively, managers might consider predator management in translocation efforts to buffer recently released individuals from potentially elevated predation rates. Future work should quantify predator and alternate prey communities in habitats used by Greater Sage-Grouse.