

EFFECTS OF HUNTING ON SAGE GROUSE POPULATION DYNAMICS: AN UPDATE FROM A CASE STUDY IN SOUTH-CENTRAL MONTANA

Jenny Sika and Jay Rotella, Fish and Wildlife Management Program, Ecology Department,
Montana State University, Bozeman, MT 59717, jsika@montana.edu

Jay Newell, Biologist, Montana Fish, Wildlife and Parks, 1425 2nd St West, Roundup, MT 59072

Sage grouse (*Centrocercus urophasianus*) have been extirpated in five states and one province, and their populations have reportedly declined over the remainder of their historical range. Much research has been conducted to determine rates of their reproduction and survival, but the effects of hunting on population dynamics has been less studied. Both additive and compensatory mortality hypotheses have been suggested for sage grouse, but compelling evidence for either hypothesis is lacking. To assess the effect of harvest on population dynamics and the relationship between harvest and these competing hypotheses, we radio-marked and monitored sage grouse on two sites, one open and one closed to hunting, in south-central Montana from spring 2003 through the end of the sage grouse harvest season in 2005. We monitored the level, timing, and, whenever possible, the causes of female mortality each year. We also monitored reproductive effort and success in these birds. This allowed us to compare productivity between the two sites, which will especially be of interest should we find evidence that density was reduced by harvest on the hunted site. Preliminary results were presented regarding the levels of female mortality during hunting season, breeding effort and success, and overall mortality of females for all three years of the study. Possible explanations for the absence of hunter-bagged radio-marked birds were discussed.