

Beck, J. L., K. P. Reese, J. W. Connelly, and M. B. Lucia. 2006. Movements and Survival of Juvenile Greater Sage-Grouse in Southeastern Idaho. *Wildlife Society Bulletin* 34:1070-1078.

Abstract: Low recruitment has been suggested as a primary factor contributing to declines in greater sage-grouse (*Centrocercus urophasianus*) populations. We evaluated movements and survival of 58 radiomarked juvenile greater sage-grouse from 1 September (10 weeks of age) to 29 March (40 weeks of age) during 1997–1998 and 1998–1999 in lowland and mountain valley study areas in southeastern Idaho, USA. Juvenile sage-grouse captured in the mountain valley area moved an average of 2.2 km (20%) farther ($x = 13.0$ km, $SE = 1.2$ km) from autumn to winter ranges than juvenile grouse captured in the lowland area ($x = 10.8$ km, $SE = 1.2$ km). Ten of 11 deaths occurred from September to December. Fifty percent of deaths in the lowland population were attributable to human-related mortality including power-line collisions and legal harvest, while 33% and 17% of deaths were attributable to mammalian predators and unknown cause, respectively. All deaths in the mountain valley population were attributed to avian or mammalian predators. Survival was relatively high for birds from both populations, but was higher across years in the lowland ($S^{\wedge} = 0.86$, $SE = 0.06$, $n = 43$) than in the mountain valley population ($S^{\wedge} = 0.64$, $SE = 0.13$, $n = 14$). In our study juvenile sage-grouse that moved farther distances to seasonal ranges experienced lower survival than juveniles from a more sedentary population. Moreover, high juvenile survival in our study suggests that if low recruitment occurs in sage-grouse populations it may be due to other factors, especially poor nesting success or low early chick survival.

In their paper the authors discussed mortality by study areas. For Medicine Lodge they reported 5 of 14 (36%) in Medicine Lodge and 6 of 43 (14%) in Table Butte. Two deaths occurred in September (18%), 5 in October (46%), 1 in November (9%), 2 in December (18%), and 1 in March (9%). All mortalities in Medicine Lodge were attributed to natural predators (avian 80%; mammal 20%), while mortality associated with human activities (legal harvest 17%; power-line collisions 33%) accounted for 50% of mortalities in Table Butte. All mortalities associated with human activities in Table Butte occurred during September and October. The remaining deaths in Table Butte were attributable to mammalian predation (33%) and unknown cause (17%). Of total mortalities avian predation was the cause of death for 36% of grouse, followed by mammal predation (27%), power-line collisions (18%), legal harvest (9%), and unknown cause (9%). The powerline mortalities occurred in October. They did not describe the circumstances that may have contributed to the collisions. Increased collisions with overhead wires have been previously reported in black grouse in Scotland during the hunting seasons (Miqueta, A. 1990. Mortality in black grouse *Tetrao tetrix* due to elevated cables. *Biological Conservation* 54:349-355).