

A NON-INTRUSIVE, ALTERNATIVE METHOD FOR ASSESSING CHICK SURVIVAL IN GREAT SAGE GROUSE

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Accurate measurement of key vital rates is essential for assessing and mitigating human impacts on populations of sensitive and declining species. Concern for greater sage grouse (*Centrocercus urophasianus*) in the face of historical population declines and continuing threats to the birds and their habitat has prompted extensive research into this species' demography. Although recruitment is thought to be a limiting factor in some sage grouse populations, few estimates of chick survival for this species are available. Two major techniques have been used to assess chick survival: daytime flush counts and radio-marking. Here, we present and describe a third non-intrusive alternative: spotlight counts on brood hens. We used both spotlight counts and daytime flush counts to assess survival of sage grouse chicks and broods in the Powder River Basin over the three years 2003-2005. Because of differences in how sage grouse chicks behave during the day and at night, detectability of chicks tends to be higher at night. Spotlight counts and spotlight and flush counts in combination both resulted in higher estimates of chick and brood survival at 35 days than flush counts alone. We encourage future studies of sage grouse to incorporate spotlighting as a new technique for measuring chick and brood survival. We discuss pros and cons of the three methods and additional research that would improve our understanding of chick and juvenile survival in sage grouse.