

Lyon, A.G. and S.H. Anderson. 2003. Potential Gas Development Impacts on Sage Grouse Nest Initiation and Movement. *Wildlife Society Bulletin* 31:486-491.

Abstract: The decline of greater sage grouse (*Centrocercus urophasianus*) over the last 50 years has raised concern over how natural gas development might affect sage grouse populations. We examined the effects of vehicular activity due to gas-well development near Pinedale, Wyoming, on productivity and movements of sage grouse. In 1998-1999, we captured and radiomarked 48 female sage grouse on 6 leks classified as disturbed or undisturbed, based on the presence or absence of natural gas development within 3 km. The mean distance from disturbed leks to selected nest sites was greater ($P=0.019$ with outliers removed, $P=0.004$ with outliers included) than distance moved from undisturbed leks. Nest-initiation rate for hens from disturbed leks was 65%, while hens from undisturbed leks initiated nests 89% ($P=0.07$) of the time. Nest success at both disturbed and undisturbed leks was 50%. Our results suggest that light traffic disturbance (1-12 vehicles/day) during the breeding season might reduce nest-initiation rates and increase distances moved from leks during nest-site selection. We recommend further investigation concentrating on hen behavior (i.e., distance moved from lek to nest site, breeding behavior, lek attendance), reproductive effort, and nest success in relation to natural gas development as development intensifies.