

Pruett, C.L., M.A. Patten, and D.H. Wolfe. 2009. Avoidance Behavior by Prairie Grouse: Implications for Development of Wind Energy. *Conservation Biology* 23(5):1253-1259.

Abstract: New wind-energy facilities and their associated power transmission lines and roads are being constructed at a rapid pace in the Great Plains of North America. Nevertheless, little is known about the possible negative effects these anthropogenic features might have on prairie birds, one of the most threatened groups in North America. We examined radiotelemetry tracking locations of Lesser Prairie-Chickens (*Tympanuchus pallidicinctus*) and Greater Prairie-Chickens (*T. cupido*) in two locations in Oklahoma to determine whether these birds avoided or changed movement behavior near power lines and paved highways. We tracked 463 Lesser Prairie-Chickens (15,071 tracking locations) and 216 Greater Prairie-Chickens (5,750 locations) for 7 and 3 years, respectively. Individuals of both species avoided power lines by at least 100 m and Lesser Prairie-Chickens avoided one of the two highways by 100 m. Prairie chickens crossed power lines less often than expected if birds moved randomly ($p < 0.05$) but did not appear to perceive highways as a movement barrier ($p > 0.05$). In addition, home ranges of Lesser Prairie-Chickens overlapped the power line less often than would be expected by chance placement of home ranges; this result was supported by kernel-density estimation of home ranges. It is likely that new power lines (and other tall structures such as wind turbines) will lead to avoidance of previously suitable habitat and will serve as barriers to movement. These two factors will likely increase fragmentation in an already fragmented landscape if wind energy development continues in prairie habitats.