

Wolfe, D.H., M.A. Patten, E. Shochat, C.L. Pruett, and S.K. Sherrod. 2007. Causes and Patterns of Mortality in Lesser Prairie-chickens *Tympanuchus pallidicinctus*, and Implications for Management. *Wildlife Biology* 13(sp1):95-104.

Abstract: Life-history studies of prairie grouse have focused on reproductive ecology, habitat use, movement patterns and survivorship, with only cursory or anecdotal references to mortality causes, or they have been of insufficient duration or scale to infer mortality patterns. Because mortality causes and patterns affect other life-history traits, their determination adds to our overall understanding of grouse demographics. As part of a long-term study on lesser prairie-chicken *Tympanuchus pallidicinctus* natural history in Oklahoma and New Mexico, we recovered 322 carcasses of radio-tagged birds captured on leks. We were able to determine the cause of death for 260 of these birds. Predation by raptors accounted for the largest number of mortalities (91), followed by collisions with fences (86), predation by mammals (76), collisions with power lines (4), and collisions with automobiles (3). Mortality causes differed considerably between study sites and between sexes, with all collisions more frequent in Oklahoma than in New Mexico, in females than in males, and in older than in young females. Although predation is a major cause of mortality, we argue that predator control may not be effective for grouse conservation. Moreover, in cases where top predators reduce mesopredator population densities, for example those of red foxes *Vulpes vulpes*, indiscriminate removal of predators may hasten the decline of grouse populations. Land managers striving to conserve prairie-chickens and other grouse species should attempt to reduce or eliminate collision mortality risks in addition to efforts to improve nesting or brood-rearing habitat. Collision risks should also be evaluated for potential release sites of translocated or captive-reared grouse.