Gibson, R.M. and G.C. Bachman. 1992. The costs of female choice in a lekking. Bird Behavioral Ecology 3:300-309.

Abstract: We investigated the costs of active female choice in sage grouse, *Centrocercus urophasianus*, a lekking species in which females make repeated, lengthy visits to leks to assess males before mating. Several potential costs were measured by monitoring changes in hens' ranging behavior, time budgets, and encounter rates with predators when they visited leks. Two costs were identified: hens moved further per day and encountered golden eagles, *Aquila chrysaetos*, more frequently when visiting leks. However, extra travel due to visiting leks increased predicted daily energetic expenditure by only about 1%, and the risk of predation by golden eagles over a typical series of lek visits (compared to a single short visit for mating) was estimated to reduce annual survival by <0.1%. Two other potential costs were not supported: visiting leks did not depress foraging time or conflict with nest defense. These results indicate that any costs of mate choice are slight and imply that even very small benefits could be sufficient to maintain female choice. We present calculations which suggest that increased offspring viability due to choosing fitter males could balance predation costs even if the heritability of fitness is low and if females identify fitter males with only moderate accuracy. Despite recent emphasis on the direct benefits of mate choice, we conclude that either indirect or direct benefits could provide a plausible solution to the lek paradox.