

Hartzler, J.E. 1974. Predation and the daily timing of sage grouse leks. *Auk* 91:532-536.

In lek species males gather on communal, traditional display grounds called arenas. There they attract and copulate with females. The male's role in reproduction ends at this point and the females leave the arena for nesting and rearing of young. The evolution of lek systems implies that advantages must outweigh disadvantages. Many potential advantages have been suggested. Aggregations may aid in synchronization of breeding activities and thus reduce the length of time when young are most vulnerable to predation (Darling 1938). Lek breeding might allow population density assessment and subsequent adjustment of re-productive output (Wynne-Edwards 1962). Groups of animals are more likely to detect predators than solitary animals because of the increased sensory capacity of the group (Allee 1938). Larger groups of displaying males are more conspicuous and thus may attract females more efficiently than smaller groups or solitary males (Snow 1963, Braestrup 1966). Conspicuousness is potentially disadvantageous because of the increased danger of attracting predators. Predation has probably influenced the sites chosen for leks and the timing of leks. Most arenas are located on sites where the view of horizons is good. Sage Grouse (*Centrocercus urophasianus*) arenas are located in treeless terrain on sites with hills sloping upward on most sides (Patterson 1952, Wiley 1973). Here predators could not be easily hidden while they approached the lek. The restriction of lek behavior in Black Grouse (*Lyrurus tetrix*) to dawn and dusk may minimize disturbance from aerial predators (Hjorth 1969). This interpretation might also help explain crepuscular lek activity among other grouse.