

Monitoring the Common Nighthawk (*Chordeiles minor*) in Northern Minnesota

Developing methods for monitoring bird species that do not exhibit typical breeding behaviors is difficult. Species that do not sing, are sparsely distributed, are not active in the early morning, or are secretive are often impossible to monitor using traditional methods such as point counts. The common nighthawk (*Chordeiles minor*), like other species in the nightjar family, is a low-density breeder in Minnesota and is not adequately surveyed with point counts due to its secretive nature and crepuscular activity. Specific surveys have been developed for nightjars, but never tested for utility with the common nighthawk. We compared nightjar survey routes censused during a crepuscular time period to those run during a nocturnal time period. Significantly more nighthawks were detected during the crepuscular window, a time period that is not used during the official survey. While the effect of time of survey was significant, the surveys were labor-intensive and relatively few observations of common nighthawk were made. However, large numbers of this species occur each autumn along the north shore of Lake Superior. With average annual counts of over 20,000 individuals, the autumn migration of common nighthawks is the largest known concentration of this species in the world. Visible migration counts of nighthawks were conducted for three weeks each year from 2008-2017 in Duluth, Minnesota. This daily evening count has elucidated the weather variables that most often lead to large flights: light and westerly winds, high humidity, and warm temperatures, conditions not often associated with autumn migration. While the precise geographic origin of these migrant birds is unknown, many come from the Canadian boreal forest, where this species has undergone a significant decline and is listed as threatened. The annual fall count of migrating common nighthawks along the north shore of Lake Superior is likely the best and most cost-effective way to census the boreal forest breeding common nighthawks and determine population trends for this declining aerial insectivore.