



Avian Response to Grassland Management on Military Airfields

Legacy
08-381

Background:

The primary management objective on airfield grasslands is to reduce the risk of bird/wildlife aircraft strikes, which can be both costly and catastrophic. However, little information is available in the scientific literature to guide these management decisions. Damaging bird strikes typically involve common large-bodied or flocking species, which may respond differently to management activities than grassland birds of conservation concern. North American grassland birds as a whole have experienced significant population declines in recent decades due to loss of habitat, and typically do not pose a significant threat to aircraft. Large grasslands associated with commercial and military airports have become increasingly important for the conservation of these species. Increased knowledge of how different species respond to different management regimes (e.g., vegetation height, density) in airfield grasslands will have benefits for both air safety and conservation.



Canada Geese loafing on a runway at WARB (photo; Michael Allen). Inset: Grasshopper Sparrow breeding at LNAES (photo; Kevin Karlson).

Objective:

This Legacy-funded study examined the effects of vegetation structure and management regimes on the abundance and distribution of birds on military airfields. We focused on how airfield mowing practices affect habitat use by both high-risk species and species of conservation concern. We also sought to determine the prevalence, species composition, and temporal variation of bird activity near runways.

Summary of Approach:

We conducted transect bird surveys (line-distance sampling) and vegetation measurements in grassland habitats at three eastern U.S. military installations: Westover Air Reserve Base (WARB, Massachusetts),

Naval Air Engineering Station Lakehurst (LNAES, New Jersey), and Naval Air Station Patuxent River (Maryland). Surveys were conducted approximately every two weeks during fall migration in 2007 and 2008, and during spring migration and breeding season in 2008 and 2009. We also recorded mowing activity at the three sites through cooperative agreements with grassland management crews. Finally, we quantified potential bird strike risk at each site using bi-monthly behavioral observation surveys near runways.

Benefit:

This study will aid military airfield habitat managers in their efforts to reduce the risk of bird strikes while providing knowledge of how these efforts will affect species of conservation concern. Specifically, the study will inform managers which “problem” species are most active near runways, and how these species respond to grass height management. Management of sensitive grassland species will similarly benefit from an increased understanding of their habitat requirements. In the end, we feel that that Department of Defense can simultaneously provide a conservation benefit while minimizing risk from problem species, and that an optimal management solution can be reached through a collaborative process.

Accomplishments:

The second year of this three-year project was completed in July 2009. During this year we completed 1200 transect surveys and 900 behavioral observation sessions. Preliminary results indicate that at intensely managed airfields, the abundance of high strike risk species was greatest in areas with shorter vegetation. Species of conservation concern, conversely, were more abundant in taller vegetation. At the landscape scale, strike risk species were observed in highest densities in developed areas of the airfield. Birds did not appear to track conditions or adjust habitat use on a short time-scale (i.e., within seasons). We anticipate that a third year of data will generate a better understanding of seasonal differences in avian response to grassland management.

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