



## Avian Response to Grassland Management on Military Airfields

07-381

### 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:

Funded by DoD Legacy Program, this 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 (Massachusetts), Naval Air Engineering Station Lakehurst (New Jersey), and Naval Air Station Patuxent River (Maryland). Surveys were conducted approximately every two weeks during fall migration in 2007, and during spring migration and breeding season in 2008. 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 what vegetation characteristics they are most associated with. Management of sensitive grassland species will similarly benefit from an increased understanding of their habitat requirements. These species can then be actively managed for to the extent that it does not increase bird strike risk or interfere with the military mission. Finally, our study design could serve as a model for balancing strike risk with conservation priorities on other military or commercial airfields.

### Accomplishments:

The first year of this two year project was completed in July 2008. During this year we completed ca. 600 transect surveys and 400 behavioral observation sessions. Preliminary results indicate that the abundance of high strike risk species, as a group, varied by site, and was lower with increasing vegetation height. Species of conservation concern, conversely, were more abundant in taller vegetation. Mapping the results of our surveys allowed us to identify hotspots of conservation and risk species on the sites. Additional data gathered during the second year of the study will allow us to investigate the potential effects of landscape attributes, and to explore the responses of individual species more thoroughly.

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