



## Grassland Bird Productivity on Military Airfields

Legacy # 08-408

### Background:

Grasslands associated with airfields in the eastern United States (both military and civilian) often support key populations of regionally rare grassland birds. As grassland habitat area in the region continues to shrink, the role that that large airfields play in maintaining populations of these species is likely to increase. However, relatively little is known regarding the reproductive success of grassland birds on airfields, and whether these habitats act as population sources or sinks. This is of particular concern because vegetation management on these sites often involves regular mowing during the summer breeding season, a practice that can be harmful to nesting success.



Grasshopper sparrow nest on Lakehurst Naval Air Engineering Station (LNAES), 2009.

### Objective:

Funded by Department of Defense (DoD) Legacy Resource Management Program, the purpose of this study was to obtain a general picture of grassland bird reproductive success on regional military airfields, and to identify factors affecting success. We were particularly interested in examining the potential effects of mowing, disturbance, and vegetation structure on the nest survival of grasshopper sparrows (*Ammodramus savannarum*) and eastern meadowlarks (*Sternella magnum*), species of conservation concern in the Northeast and Mid-Atlantic regions.

### Summary of Approach:

From mid-April to mid-July 2009, we searched for and monitored grassland bird nests on three military airfields: Westover Air Reserve Base (Massachusetts), Lakehurst Naval Air Engineering Station (New Jersey), and Patuxent River Naval Air Station (Maryland). At each nest we

quantified vegetation characteristics and other factors such as distance to an active runway. Through cooperation with mowing crews, we were also able to determine 1) whether a nest was located in an actively mowed area, 2) whether a nest was passed over by a mower while active, and 3) the condition of all nests immediately following mowing. We calculated daily nest survival rates (DSR), and examined the effects of various predictor variables using logistic modeling in program MARK. We also modeled the mean number of fledglings produced per nest using Generalized Linear Models.

### Benefit:

This study will allow airfield habitat managers to better understand how mowing and other management activities on their lands may affect sensitive grassland bird populations. It will also provide basic knowledge of grassland bird nesting success on airfields that is currently lacking. Management of rare species will benefit from an increased understanding of nesting microhabitat characteristics.

### Accomplishments:

The first year of this study has generated useful qualitative and quantitative information regarding grassland bird nesting microhabitat and overall productivity at the three sites. In 2009, we located and monitored 42 grasshopper sparrow nests, 48 eastern meadowlark nests, and 41 nests of four other grassland species across all sites. Daily nest survival rates were comparable to reports from other studies in non-airfield grasslands. Modeling results did not point to mowing variables as the most significant factors affecting nest survival, though sample sizes of mowed nests were small, making comparisons among treatments difficult at this stage. We did observe some nest failure caused by mowers, both directly (e.g., crushing) and indirectly (e.g., scavengers, abandonment). Additional data collected during a second field season will allow us to better quantify these effects, and to further explore other possible factors influencing nest survival on DoD airfields.

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