



Background:

Grasslands associated with airfields in the eastern United States (both military and civilian) often support large numbers of regionally rare grassland birds. As grassland habitat area in the region continues to shrink, the role 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 particularly of concern because vegetation management on these sites often involves regular mowing during the summer breeding season, a practice known to be harmful to nesting success.



photos: Mike Allen

Checking nests at Patuxent River Naval Air Station. Inset: eastern meadowlark nest.

Objective:

Funded by the DoD Legacy Program, the purpose of this study was to obtain a general picture of grassland bird reproductive success on regional military airfields, and to examine possible factors that may be affecting productivity. We were particularly interested in examining the effects of mowing and vegetation structure on nest survival of grasshopper sparrows (*Ammodramus savannarum*) and eastern meadowlarks (*Sturnella magna*), species of conservation concern in the region.

Summary of Approach:

From mid-April to mid-July in 2009 and 2010, we searched for and monitored grassland bird nests on three military airfields: Westover Air Reserve Base (Massachusetts), Joint Base McGuire-Dix-Lakehurst (New Jersey), and Patuxent River Naval Air Station (Maryland). At each nest we quantified vegetation characteristics and other factors such as distance to active runways. 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.

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 preferences, and from site-specific information on the timing of nesting. Ultimately, data collected in this project can be used to develop best management practices (BMPs) that may serve as guidelines for airfield managers wishing to minimize impacts on sensitive grassland species.

Accomplishments:

The first two years of this study have generated useful information regarding grassland bird nesting microhabitat, phenology, and overall productivity at the three sites. In 2009-2010, we located and monitored 115 grasshopper sparrow nests, 86 eastern meadowlark nests, and 86 nests of other grassland species. In 2010, we also banded 187 nestlings to examine future recruitment into the population. Daily nest survival rates at all sites were comparable to reports from other studies in non-airfield grasslands. Thus far, modeling results do not point to mowing variables as the most significant factors affecting nest survival, although we observed several instances of nest failure caused by mowers, both directly (e.g., crushing) and indirectly (e.g., scavengers, abandonment). We anticipate that additional data collected during a proposed third field season will allow us to better quantify these effects, evaluate recruitment, develop BMPs, and further explore other possible factors influencing airfields in the Northeast and Mid-Atlantic regions.

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