



Migration Ecology and Connectivity of At-Risk Grassland Birds – Year 4

Project # 16-764

Background:

Conservation of natural resources on DoD lands is ultimately necessary to sustain the military training mission by ensuring the long-term availability of training lands. Through research, habitat management, partnerships, and education, management personnel and other resources are aimed at conserving birds and their habitat on installations.

Upland Sandpiper (*Bartramia longicauda*), Grasshopper Sparrow (*Ammodramus savannarum*), and Eastern Meadowlark (*Sturnella magna*) are three designated At-Risk migratory grassland bird species that occur on many military installations supporting grasslands. All three species have experienced population declines in parts or all of their breeding ranges. Resources can be used more efficiently and effectively if there is an understanding of the events affecting these migratory birds during their entire life cycle, rather than only during the three to four-month breeding season. To address the threats that birds face throughout the year, we need a basic understanding of where they go between their summer breeding seasons. This project provides the basis for understanding the movements of these species throughout the year. Understanding the entire annual cycle of migratory birds across their breeding range offers avenues for sharing the burden of protecting declining populations, and provides insights applicable to other installations supporting grassland birds.

Objective:

The project objective is to provide support to installations managing for any of three At-Risk migratory grassland bird species. Specifically, we provide a continental and hemispheric-wide view of bird movements and bird connectivity between breeding, migration, and wintering locations.

Summary of Approach:

Light-level geolocators, and Argos- and GPS-satellite tags were used to generate year-round location data for three At-Risk bird species at seven DoD installations across the country. Light-level geocator data were processed using FLIGHTR, the most robust analysis package available.

Benefit:

The project enhances military readiness by defining the role and responsibility of installations in the conservation of these At-Risk species, helping them comply with their obligation to develop and implement Integrated Natural Resources Management Plans (INRMPs) under the Sikes Act, and fulfilling their MOUs with USFWS as required by Executive Order 13186. Partnerships are an important part of INRMPs, and by identifying non-installation lands used by these species throughout the year, our research enables DoD to partner with other land managers to enhance conservation of the species. With an improved understanding of important non-breeding areas, DoD is able to: more effectively manage for these At-Risk species; share conservation responsibility with other entities; identify potential off-site threats to species; and understand the relative role and importance of management at installations that support populations of these species.

Accomplishments:

Since September 2017, we analyzed data from 10 GPS-satellite tags deployed on Eastern Meadowlarks; and 5 GPS-satellite tags and 4 Argos-satellite tags deployed on Upland Sandpipers. We continue to receive intermittent data from 1 of the Argos-satellite tags. We submitted a manuscript to the professional journal *Ecology and Evolution* based on the Grasshopper Sparrow and Eastern Meadowlark data, and it has been accepted for publication, conditional on revisions. We presented a DoD NR webinar on 30 May 2018, highlighting our results. We are analyzing Upland Sandpiper location data and will write a second manuscript for publication based on a robust statistical movement analysis. We are submitting a final report to Legacy, and will also produce an online map featuring some of our location data upon completion of this project in December 2018.

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