

Effect of a Fire-grazing Interaction on Henslow's Sparrow (*Ammodramus henslowii*) Habitat Use and Nest Success on Southern Iowa and Northern Missouri Grasslands

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Goals and Objectives:

Objective 1: Construct and evaluate Henslow's Sparrow habitat selection models that incorporate vegetation structure, landscape context, and management technique.

Objective 2: Quantify nest success rates for the Henslow's Sparrow in relation to vegetation structure, landscape context, and management technique.

Introduction:

Managing grasslands with a fire-grazing interaction can accommodate a broader diversity of grassland bird species by increasing habitat heterogeneity in time and space. Implemented over broad spatial scales on grassland reserves and private grazing lands, this type of management has the potential to mitigate widespread declines in grassland species. This is especially true for habitat specialists adapted to the extremes of a grassland disturbance gradient, because spatial heterogeneity acts as a buffer against temporal variability, offering a more constant supply of resources through time. One such habitat specialist that has been shown to benefit from management using a fire-grazing interaction is the Henslow's Sparrow (*Ammodramus henslowii*), a disturbance-intolerant grassland obligate that has exhibited especially steep declines across much of its range. Recent work has demonstrated that an increase in grassland heterogeneity can substantially increase Henslow's Sparrow abundance. However, that work was conducted on large, relatively unfragmented grasslands in Oklahoma; the response of the Henslow's Sparrow to a fire-grazing interaction is unknown in the more fragmented grasslands representative of most of the species' range. Examining the response of Henslow's Sparrow populations to a fire-grazing interaction in a fragmented grassland landscape will afford the opportunity to evaluate the potential of this emerging management technique to enhance populations of grassland birds in similar landscapes throughout the tallgrass prairie region.

Progress:

We mapped 38 Henslow's Sparrow territories on ten study pasture in Ringgold County, Iowa, from May - July 2008. Eighteen territories were observed on three sites to be burned in 2009. There were 11 territories established on three control sites. We observed nine territories on one patch-burned pasture, but none on the three remaining patch-burned pastures, despite there being males present. All data have been entered and processed, and will be analyzed following the 2009 field season.

Progress on the second objective was hampered during 2008 by our incorrect assumptions about Henslow's Sparrow behavior during the breeding season. Due to logistical constraints we elected to use Vickery's (1992) index of reproductive success based on observed breeding behavior to quantify reproductive activity at each territory. However, Henslow's Sparrows' secretive nature makes them ill-suited for such an approach because those behaviors indicative of reproductive activity cannot be readily observed in the field.

Future Plans:

During the 2009 field season we will again map all territories used by male Henslow's Sparrows at our study pastures. We will modify our methods for quantifying reproductive activity, to overcome the problems experienced during the 2008 field season. We will return to a standard protocol for nest searching and monitoring as detailed in our proposal, but we will focus our activities on the mapped territory locations. This will hopefully mitigate our concerns about the time and personnel required for such an effort.