



Sand Creek Massacre National Historic Site

2011 Landbird Monitoring

Birds are a conspicuous component of many ecosystems. Changes in bird populations may be indicators of changes in the biotic or abiotic components of the environment upon which they depend. Birds select habitat based on the presence of behavioral cues triggered by the environment. In some environments, especially those that vary unpredictably, monitoring birds is strengthened by concurrent monitoring of a broad suite of environmental parameters that may assist with understanding changes in the bird community relative to other environmental factors.

The overall goal of the Southern Plains Inventory & Monitoring Network (SOPN) landbird monitoring program is to detect biologically significant changes in population parameters over time. We have selected three primary monitoring objectives that are complementary and together provide a comprehensive assessment of changing bird populations and communities; they are: (1) occupancy—the measure of presence or absence of a species; (2) species richness and composition—the number and kinds of species; and (3) density—the number of species in a sampled area.

Methods

We sampled primarily in two habitat classes: grassland and riparian, which are the dominant vegetation communities in the SOPN. We used point-transect surveys to estimate and monitor landbird population parameters. Monitoring must be conducted for a number of years before meaningful estimates related to trends are feasible. Consequently, it is neither practical nor useful to conduct comprehensive analyses for each objective on an annual basis. Instead, we will provide annual basic data summaries and a comprehensive synthesis report once every five years, that will include analyses for all objectives and interpretations in the broader ecological context.

During June of 2011, we sampled three transects or grids at Sand Creek Massacre National Historic Site (NHS) (Figure 1). Two transects were in grassland habitat (shortgrass prairie) with 20 unique points each, and one transect was in riparian habitat (cottonwood bottom) with 16 unique points. Each point was surveyed three times for a total of 168 point visits (the number of unique points multiplied by the number of visits) at Sand Creek Massacre NHS.



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Horned Lark (*Eremophila alpestris*) was a common species at Sand Creek Massacre NHS in 2011.

Results

During 2011, 1,555 birds of 39 species were counted at Sand Creek Massacre NHS. Western Meadowlark, the most commonly detected species in the park (27%), was noted throughout the park, particularly in the sand sage and upland grassland. Mourning Dove (15%), Cassin's Sparrow (12%), Western Kingbird (10%), and Horned Lark (6%) were also common. No new species were detected in 2011.

Cassin's Sparrow was found at both grassland transects, but was more common in the sand sage. Though Grasshopper Sparrow was still common at the sand sage and upland grassland transects, the total count was considerably less than in 2010. Notable bird species found in the riparian cotton-

wood included Mourning Dove, Western Kingbird, and three species of Orioles—Baltimore, Bullock’s, and Orchard. Other interesting birds detected included Common Yellowthroat, Warbling Vireo, Yellow-billed Cuckoo, one Dickcissel, and one singing Eastern Bluebird. Burrowing Owl and Mountain Plover, detected in the prairie dog colony at the upland grassland transect in the 2009 point count survey, were absent for the second consecutive year. No prairie dogs were present during the 2010 and 2011 point count surveys.

Accessing the Data

The Rocky Mountain Bird Observatory (RMBO), our primary cooperator for this project, manages the bird monitoring data associated with it. Other networks using RMBO also use this service and have found it to be efficient and effective. This enables SOPN data to be stored in the same database as that of several other networks and organizations, which in turn allows for a more comprehensive regional assessment. SOPN and its parks will have easy access to the data upon completion of the new Avian Data Center, expected in summer 2012. To access this data, go to <http://www.rmbo.org/public/monitoring>.



Figure 1. Point locations targeted for annual sampling at Sand Creek Massacre NHS.