



## Lake Meredith National Recreation Area

# 2012 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 Southern Plains Inventory & Monitoring Network (SOPN) began monitoring birds in 2009. This effort is part of a collaboration among the Southern Plains, Chihuahuan Desert, and Sonoran Desert Networks. The overall goal of our bird 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—of the most common species. The primary monitoring objectives focus on long-term changes and trends, so 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 basic data summaries annually and a comprehensive synthesis report once every five years; the synthesis report will include analyses for all objectives and interpretations in a broader ecological context.

## Methods

We used point-transect surveys to estimate and monitor landbird population parameters. We sampled primarily in two habitat classes, grassland and riparian, in the SOPN. During April and May of 2012, we sampled four transects/grids at Lake Meredith National Recreation Area (NRA; e.g., Figure 1). Two transects were located in grassland habitat (upland grassland) and had 19 unique points each, and two were located in riparian habitat (bottomland grassland and cottonwood bottom) and had 18 or 19 unique points each. Each point was surveyed three times, for a total of 225 point



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Nesting Cooper's Hawks (*Accipiter cooperii*) were detected during surveys at the NRA for the third consecutive year.

visits (the number of unique points multiplied by the number of visits) at the park.

## Results and Discussion

During the 2012 survey, 1,558 birds of 65 species were counted at Lake Meredith NRA. The park's diverse habitat, ranging from upland grassland to riparian canyon land and bottomland with a mix of grassland/savannah/wetland, attracts a high diversity of bird species. Of the 65 species detected at the NRA, Red-winged Blackbird was the most commonly counted (10% of the total number of birds counted), with most of those observed at the bottomland transect. The next species counted in the highest numbers were Western Meadowlark (9%), Mourning Dove (8%), Cassin's Sparrow (8%), Blue Grosbeak (4%), and Rufous-crowned Sparrow (3%). The count of Western Meadowlark increased from 17 in 2011 to



Figure 1. Point locations targeted for annual sampling at Lake Meredith NRA, Upland Grass/Honey Mesquite.

133 in 2012, possibly due to improved grassland habitat at the upland transect. For the third consecutive year, a pair of Cooper's Hawks and a nest were detected at or near the same site on Turkey Creek.

The upland transect produced two of three new park species detected in 2012— Chihuahuan Raven and migrant Franklin's Gull. Detections of Chihuahuan Ravens included an incidental observation at the upland transect and one raven during a point count survey at the honey-mesquite transect. A large flock of migrant Franklin's Gulls was detected on Lake Meredith. The other new species for the park was migrant Ruby-crowned Kinglet (two, at the bottomland transect). Although not new for the park, ten species were observed for the first time during point count surveys. These species included: American Coot on Lake Meredith; Eastern Bluebird, Northern Shoveler and White-faced Ibis at the bottomland transect; Downy Woodpecker, Great-tailed Grackle (just outside of the park boundary), and Wild Turkey at the bottomland and honey mesquite transects; Burrowing Owl (in the black-tailed prairie dog town) and Scaled Quail, both at the upland transect; and Green Heron at the bottomland transect (as incidental observation after a survey).

## Accessing the Data

The Rocky Mountain Bird Observatory (RMBO), our primary cooperator for this project, manages the bird monitoring data they collect. 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. To view interactive maps showing survey and detection locations, as well as species counts and survey effort, visit RMBO's Avian Data Center at <http://rmbo.org/v3/avian/Home.aspx>.

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