Sonoran Desert Network
Monitoring Brief

National Park Service
U.S. Department of the Interior

Intermountain Region
Inventory & Monitoring Program

2011

Landbirds Monitoring in 2010

Importance

Landbirds are a conspicuous component of many ecosystems. They have high body temperatures, rapid metabolisms, and occupy high trophic levels. Because they can respond quickly to changes in resource conditions, landbirds are considered good indicators of ecosystem health. In other words, changes in landbird populations may indicate changes in the biotic or abiotic components of the environment upon which they depend. Relative to other vertebrates, landbirds are also highly detectable and can be efficiently surveyed with the use of numerous standardized methods.

Long-term Monitoring

The overall goal of the Sonoran Desert Network (SODN) landbird monitoring program is to detect biologically significant changes in population parameters over time. SODN began monitoring birds in spring 2007; this effort is now part of a collaboration among the Southern Plains, Sonoran Desert, and Chihuahuan Desert networks, with data management provided by the Rocky Mountain Bird Observatory.

Specific, measurable objectives for landbirds monitoring in the Sonoran Desert Network are to estimate:

1. The proportion of points occupied for most species in most parks;
2. Parameters related to community dynamics, particularly species richness and species composition; and
3. Density of the most-common species.

Status and Trends

SODN landbird monitoring focuses on long-term changes and trends, and monitoring must be conducted for a number of years before meaningful estimates related to trends are feasible.

In 2010, landbirds were surveyed within all 11 SODN parks. Sample points were located along a total of 40 transects (for linear features, e.g., riparian habitats) or grids (for area features). Survey efforts were focused on the breeding season, April through June, with adjustments for latitude and elevation. Point-transect surveys were used to estimate and monitor landbird population parameters. Surveys were conducted twice for each transect or grid.

Black phoebe (*Sayornis nigricans*).

In all, 542 points were sampled: 358 points in upland habitats and 184 in riparian habitats. A total of 10,605 birds of 157 species were recorded on survey points, with an additional 489 birds detected as flyovers. Saguaro National Park (SAGU) had the highest number of birds detected (n = 2,954), but also had the highest number of survey points. Casa Grande Ruins National Monument (CAGR) had the lowest number of birds detected (n = 429). Similarly, we observed the greatest number of species at SAGU (n = 88) and the fewest at CAGR (n = 30). Species richness and community composition varied widely among the parks surveyed. White-winged doves were the most commonly detected species within the SODN (n = 785). Fifteen species were detected only once during our surveys, and several others were detected only a few times. Four species (ashthroated flycatcher, brown-headed cowbird, house finch, and mourning dove) were detected at all 11 parks, whereas numerous species were detected at one or very few parks. New species were recorded for three parks, with five new species recorded for Chiricahua National Monument, including the black phoebe (see photo).

Changes made to the protocol in the previous year were implemented. We changed our approach to recording detections while walking from one sample point to the next and are considering adding an additional revisit to each transect or grid.

Contact

Robert Bennetts, robert_bennetts@nps.gov