

Landbird Monitoring 2010

RESOURCE BRIEF

Importance

The National Park Service's mission is to manage park resources "unimpaired for future generations." Protecting and managing some of our nation's most significant natural resources requires basic knowledge of the condition of ecosystems and species that occur in national parks. Landbirds have high body temperatures and rapid metabolisms, and they occupy high trophic levels. Therefore, they may be indicators of changes in the biotic or abiotic components of the environment upon which they depend. Landbirds are also a conspicuous component of many ecosystems, making them highly detectable and efficiently surveyed with the use of numerous standardized methods.



PHOTO: DAVE MENKE/USFWS

Mourning dove.

Status and Trends

The Sonoran Desert Network (SODN) began monitoring birds in Spring 2007. This effort is part of a collaboration among the Southern Plains, Sonoran Desert, and Chihuahuan Desert Networks and the Rocky Mountain Bird Observatory (RMBO). The overall goal of our bird monitoring program is to detect biologically significant changes in population parameters over time. Details of our approach can be found in our monitoring protocol (in review). At Casa Grande Ruins National Monument (NM), we sampled one grid in upland habitat (desert scrub; Figure 1) during the 2010 breeding season. The grid, which had nine survey points, was sampled two times in May. The specific objectives of our efforts are:

1. To estimate the proportion of sites occupied for most species in most parks. Occupancy is a measure of presence or absence of a species in space that, when evaluated across time, indicates changes in the distribution of a species.
2. To estimate parameters related to community dynamics, particularly species richness and species composition. Monitoring the richness and composition of native communities can provide valuable insights about changes in the overall health of the system of concern.
3. To estimate density of the most-common species.

It is important to note that our objectives focus on long-term changes and trends. It is neither practical nor useful to conduct

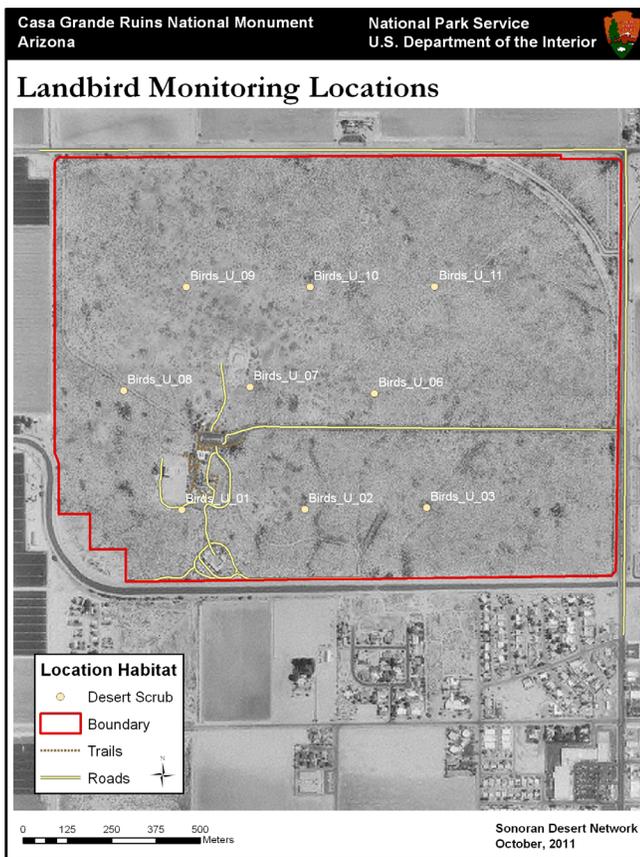


Figure 1. Bird sampling locations at Casa Grande Ruins NM.

comprehensive analyses for each objective on an annual basis. Therefore, we will provide basic data summaries on an annual basis (in resource briefs such as this one) and, once every five years, a comprehensive synthesis report that will go into much greater depth, including analyses for all objectives and interpretations in a broader ecological context.

Results and Discussion

During 2010, 429 birds of 30 species were counted at Casa Grande Ruins NM. Great-tailed grackle (*Quiscalus mexicanus*) was the most commonly counted species (24%), followed by mourning dove (*Zenaida macroura*; 17%), rock pigeon (*Columba livia*; 10%), and Gambel's quail (*Callipepla gambelii*; 9%). A new species recorded for the monument this year was the lazuli bunting (*Passerina amoena*). Species diversity and bird numbers were noticeably higher in 2010 compared to previous years, given the wet winter and presence of surface water in the adjacent agricultural fields. Large flocks of blackbird, dove, and finch dominated the monument's few habitat zones. As expected, the most numerous species were great-tailed grackle, white-winged (*Zenaida asiatica*) and mourning doves, and house finch (*Carpodacus mexicanus*), with Brewer's (*Euphagus cyanocephalus*) and red-winged (*Agelaius phoeniceus*) blackbirds also present in relatively high numbers. Large flocks of blackbirds and groups of doves were noted as flyovers and detected at lengthy distances in the sparse and open desert and agricultural habitats where visibility is good. Few migrants were noted in the limited habitat, including olive-sided flycatcher (*Contopus cooperi*), western wood-pewee (*Contopus sordidulus*), western tanager (*Piranga ludoviciana*), black-headed grosbeak (*Pheucticus melanocephalus*), warbling vireo (*Vireo gilvus*), Townsend's warbler (*Dendroica townsendi*), and pine siskin (*Spinus pinus*). Nesting burrowing owls (*Athene cunicularia*) were holding territories as in previous years, and nesting great horned owls (*Bubo virginianus*) with large fledglings were observed in the ruins ramada, where they have been in past years. A pair of loggerhead shrikes (*Lanius ludovicianus*) was detected adjacent to the transect.



PHOTO: © ROBERT SHANTZ

Great-tailed grackle.

RMBO, the NPS's primary cooperator for this project, collects and manages the bird monitoring data. The data are available through the RMBO Avian Data Center (URL: <http://www.rmbo.org/public/monitoring/CountsEffort.aspx.4>).

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Sonoran Desert Network website
(URL: <http://www.nature.nps.gov/im/units/SODN>)

Learning Center of the American Southwest
(URL: <http://www.southwestlearning.org>)