

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: © ROBERT SHANTZ

Cooper's hawk, known to nest at Tonto NM.

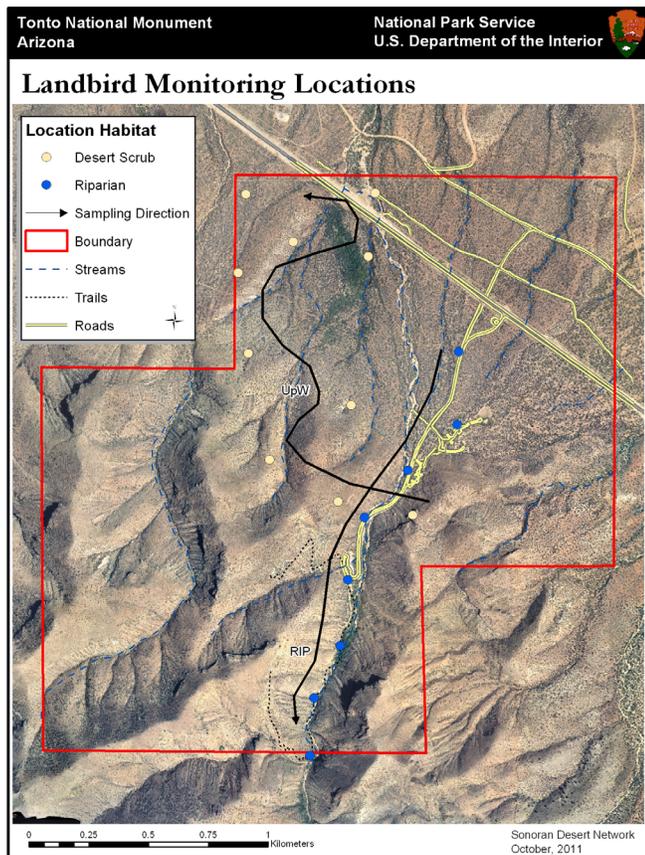


Figure 1. Bird sampling locations at Tonto NM.

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 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). During May and June of 2010, we sampled two transects at Tonto National Monument (NM). One transect was in riparian habitat with eight survey points, and the other was in upland (desert scrub) habitat with nine survey points. Each transect was surveyed twice for a total sample of 34 survey points. 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 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, 626 birds of 50 species were counted at Tonto NM. Nearly the same number of species and individual birds were observed in the riparian and upland transects. Gambel's quail (*Callipepla gambelii*) was the most commonly counted species (9%). Black-throated sparrow (*Amphispiza bilineata*; 8%), Bell's vireo (*Vireo bellii*; 6%), and mourning dove (*Zenaidura macroura*; 6%) were also common. No new species were observed in 2010.

Migrants were not prominent in the narrow riparian strip in 2010; species diversity was low through this otherwise prime migrant trap. A handful of warbler, flycatcher, vireo, tanager, and grosbeak were present, and the site still hosted a nesting pair of Cooper's hawk (*Accipiter cooperii*) at the same nest as in previous years. Three territorial singing male indigo bunting (*Passerina cyanea*) were present along the canyon bottom in 2010; the species can be absent in some years. A healthy turkey vulture (*Cathartes aura*) and white-throated swift (*Aeronautes saxatalis*) roost and nesting population were in the same cliff dwelling area as in previous years. Interesting species from the riparian and upland transect included crissal thrasher (*Toxostoma crissale*), gray vireo (*Vireo vicinior*), lazuli bunting (*Passerina amoena*), and gilded flicker (*Colaptes chrysoides*). Just north of the monument and visible from the park on the shores of adjacent Lake Roosevelt, nesting western grebe (*Aechmophorus occidentalis*) were observed where they regularly breed.

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>).



Black-throated sparrow.

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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>)