

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.

Status and Trends

The Sonoran Desert Network (SODN) began monitoring birds in Spring 2007. This effort is part of a collaboration among



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Lucy's warbler.

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 four transects at Montezuma Castle National Monument (NM; Figures 1 and 2). Three transects were located at the Castle Unit: two in riparian habitats and one in upland desert scrub. Six survey points were sampled in each riparian transect and eight points were sampled in the upland desert scrub transect. The one transect at the Well Unit was in riparian habitat and had seven survey points. Each point was surveyed twice for a total sample of 54 at Montezuma Castle NM. 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.

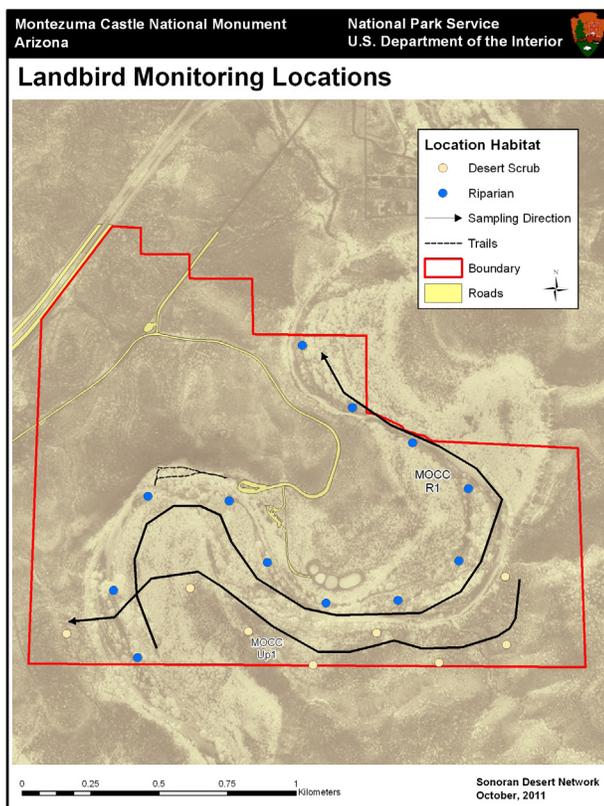


Figure 1. Bird sampling locations at the Castle Unit.

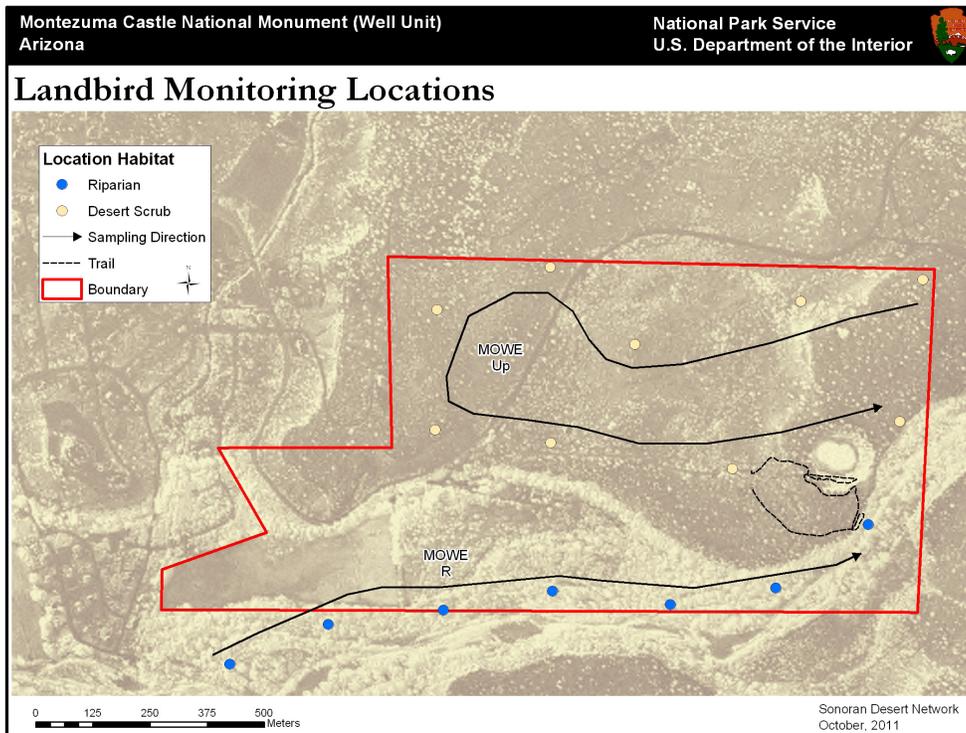


Figure 2. Bird sampling locations at Montezuma Well.

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, 1,187 birds of 69 species were counted at Montezuma Castle NM. Overall, Lucy's warbler (*Oreothlypis luciae*) was the most commonly counted species, followed by the brown-crested flycatcher (*Myiarchus tyrannulus*). At the Castle Unit, the most commonly counted species were house finch (*Carpodacus mexicanus*) and Lucy's warbler (8% each). Brown-crested flycatcher (7%), northern rough-winged swallow (*Stelgidopteryx serripennis*; 6%), mourning dove (*Zenaida macroura*; 5%), and phainopepla (*Phainopepla nitens*; 5%) were also common. At the Well Unit, the most commonly counted species was the Gila woodpecker (*Melanerpes uropygialis*), accounting for 11% of detections. Also common were yellow warbler (*Dendroica petechia*; 9%), mourning dove (9%), Lucy's warbler (7%), and brown-crested flycatcher (7%). No new species were documented in 2010.

The expected riparian breeders were numerous and frequently detected. Species included song sparrow (*Melospiza melodia*), Bewick's wren (*Thryomanes bewickii*), yellow-breasted chat (*Icteria virens*), Abert's towhee (*Melospiza aberti*), Bell's vireo (*Vireo bellii*), summer tanager (*Piranga rubra*), brown-crested flycatcher, and yellow warbler. Nesting common black-hawks (*Buteogallus anthracinus*) were observed tending to young at sites used in past years, common merganser (*Mergus merganser*) were noted, wood duck (*Aix sponsa*) were observed in suitable breeding habitat, and killdeer (*Charadrius vociferus*) were observed with young at the settling ponds near the Castle Unit visitor center. Eurasian collared-doves (*Streptopelia decaocto*) were detected several

times on different riparian transects, and they seemed to have moved into the park and established near the visitor center. Previously, they were noted just outside the park in the nearby residential neighborhood. Also noteworthy were detections of white-winged doves (*Zenaida asiatica*) in the riparian zone at both parks. This species is uncommon for the Verde Valley but might be on the rise.

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>)