

Seasonal Inventory of Birds in Low Elevation Riparian Habitats

Carlsbad Caverns National Park

Source: R. Meyer, *La Tierra Environmental Consulting, LLC*, and D. Griffin, *Griffin Biological Service*.

PROJECT SUMMARY



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Gray vireo (*Vireo vicinior*) in Carlsbad Caverns National Park.

Introduction and Background

In 2004, independent researchers began conducting a three-year inventory of birds in low-elevation riparian habitats in four parks in the National Park Service's Chihuahuan Desert Network. The objectives of this study were to (1) conduct surveys to document the presence, richness, and abundance of bird species; (2) compare results to existing information about birds at each sampling area and update park checklists; and (3) provide baseline data and site evaluations that may be used to develop bird monitoring programs in the Chihuahuan Desert Network. This summary presents information from the surveys at Carlsbad Caverns National Park. Summaries of the surveys conducted at the other Chihuahuan Desert Network parks are available on the Learning Center of the American Southwest website, www.southwestlearning.org.

Methods

The researchers initially visited each survey site to assess the extent of the habitat, determine the appropriate survey technique for the site, and establish the point count stations or survey area. The survey method for each site was based on the area's size and arrangement. Sampling was conducted during migration and breeding seasons over a three-year period from 2004 to 2007. Surveys for migrating species were conducted in spring (April and May) and fall (September and October). Surveys for breeding species were conducted in June. Researchers conducted formal surveys and recorded incidental observations during additional visits to the sites.

In 2004, the researchers conducted fall migration surveys at Walnut Canyon, Oak Springs, and Grammer Seep. Researchers surveyed Rattlesnake Springs in spring, summer, and fall of 2005. Surveys were conducted in spring and summer at Walnut Canyon and in May at Rattlesnake Springs in 2007. Point count transects were established at Rattlesnake Springs and Walnut Canyon. Surveys were conducted in the morning, though surveys were abandoned during inclement weather

conditions such as high wind. The timed area search method was used to survey Oak Spring and Grammer Seep, which are smaller sites with limited habitat, following a general route. Researchers recorded detections of birds according to time and location of the first detection and documented flyovers associated with the site. Flyovers not associated with the site, birds flushed before or after the count, and birds detected between counts were considered incidental observations.

Results

A total of 151 species previously documented in Carlsbad Caverns were recorded during this inventory. This comprises about 45% of the species known to occur in the park, compared to the park's checklist (<http://www.nps.gov/cave/naturescience/birds.htm>). Four new species were added to the checklist that were not previously documented—all at Rattlesnake Springs, which was the most diverse survey site with the highest number of documented obligate and dependent riparian species. Incidental observations accounted for a significant proportion of the species documented in this survey.

In spring 2005, higher precipitation and available food sources allowed birds to use other non-riparian areas. Migrating species arrived early at breeding sites and the songs of territorial males for most breeding species were heard in late April, though counts were low. Windy conditions associated with El Niño made spring surveys difficult. A few unusual species were reported by recreational birders at Rattlesnake Springs that spring. The survey areas were very dry during the spring and early summer of 2006.

Grammer Seep

Researchers observed 34 species, or 10% of known species in park, during the single survey of Grammer Seep. Of these species, 16 were breeding or potentially breeding, one was a riparian obligate species, and four were riparian dependent. The researchers regard this site as an important source of habitat though the species list was relatively small. The black-chinned sparrow (*Spizella atrogularis*), a U.S. Fish and Wildlife Service (USFWS) species of conservation concern was documented (USFWS 2002). No federally or state-listed species were documented.

Oak Spring

A total of 20 species, or 6% of known species in the park, was observed during the single survey of Oak Spring. Of these, nine were breeding or potentially breeding, one was a riparian obligate species, and three were riparian dependent. No USFWS species of conservation concern, or federally or state-listed species were documented.

Rattlesnake Springs

A total of 133 species, or 39% of known species in the park, was observed at Rattlesnake Springs during the surveys. Of these, 50 were breeding or potentially breeding, 15 were riparian obligate species, and 23 were riparian dependent. Four species were new to the park's checklist: common raven (*Corvus corax*), Eurasian collared-dove (*Streptopelia decaocto*), gray hawk (*Buteo nitidus*), and greater pewee (*Conopus pertinax*). Eight species of USFWS conservation concern were documented: Bell's vireo (*Vireo bellii*), Cassin's sparrow (*Aimophila cassinii*), crissal thrasher (*Toxostoma crissale*), hooded oriole (*Icterus cucullatus*), lark bunting (*Calamospiza melanocorys*), loggerhead shrike (*Lanius ludovicianus*), northern harrier (*Circus cyaneus*), and painted bunting (*Passerina ciris*). One federal candidate species the yellow-billed cuckoo (*Coccyzus americanus*) was documented breeding at the site. Two species listed as threatened by the State of New Mexico were also documented: Bell's vireo and peregrine falcon (*Falco peregrinus*). Incidental observations accounted for a large proportion of the species observed.

Walnut Canyon

A total of 81 species, or 24% of known species in the park, was observed at Walnut Canyon during the surveys. Of these, 35 were breeding or potentially breeding, 4 were riparian obligate species, and 9 were riparian dependent. Diversity was fairly high at this site, particularly during migration.

The peregrine falcon, a federal species of concern and state-listed threatened species, and yellow-billed cuckoo, a federal candidate species, were documented. The gray vireo and

varied bunting, both New Mexico threatened species, were also documented. Varied buntings (*Passerina versicolor*), at least periodically, breed in Walnut Canyon and large concentrations of hummingbirds occur in the canyon during migration. The site is important to continuing migratory and resident bird monitoring efforts.

Discussion

Carlsbad Caverns, located near the convergence of the Chihuahuan Desert and Great Plains, is near the range limits for many bird species and is a stopping point for many eastern migrating species. Outside of Rattlesnake Springs, low elevation riparian habitat is very limited in the park. Rattlesnake Springs is an important habitat for resident and migrating birds and also provides a setting for educational, interpretative, and recreational opportunities. The researchers recommend that this site, along with Walnut Canyon, should continue to be monitored. Conversely, there is limited value in establishing long-term monitoring program for bird populations at Grammer Seep and Oak Spring. In general, habitat availability for riparian associated species in southeastern New Mexico is increasing due to recent riparian restoration projects by the Bureau of Land Management on the Black and Delaware rivers.

The researchers determined that the point count and area search methods were efficient and successful in detecting most species during the breeding season, while other methods may be more effective for very rare or elusive species. For species in migration, intensive searching and mist netting may be more appropriate. Population studies of Birds of Conservation Concern, such as the gray vireo and Montezuma quail, may be warranted to answer questions of abundance and distribution.

Literature Cited

- Meyer, R., and D. Griffin. 2007. Seasonal inventory of birds in low elevation riparian habitats at Chihuahuan Desert Network Parks, National Park Service. Final report.
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