



MOJAVE NETWORK

Inventory Summary Report

INVENTORY OF BIRDS AT JOSHUA TREE NATIONAL PARK

INTRODUCTION AND OBJECTIVES

In 2002, the Mojave Network joined with the University of California, Riverside to conduct an inventory of avian species at Joshua Tree National Park (JOTR), one of the park's highest priorities. The objectives of this project were to document the occurrence of breeding birds within JOTR, with the goal of providing vouchered information on at least 90% of those species. The inventory also sought to determine the existing level of vouchering for each potentially occurring bird species, undertake additional "data-mining" activities to increase the level of documentation for each species currently lacking an appropriate museum specimen, and to update NPSpecies and NatureBib databases with the results of these efforts.

METHODS

Four sources of information were queried to obtain the list of documented species: museum records, observations, literature, and survey records. Emphasis was placed on locating voucher specimens. Species documented as occurring in JOTR were assigned distribution and abundance categories following NPSpecies convention. However, potential-but-unverified species were not assigned abundance and distribution categories since in most cases these would be "occasional" and "vagrant," respectively. Potential-but-unverified species that might breed in the park were indicated.

Museum records - Museum records of bird specimens collected within the Park were obtained by querying on-line databases maintained by individual museums, or by making direct inquiries to regional museums. All readily available online databases were queried. Museums that might be expected to hold relevant records were queried whether or not their catalog was online; these included regional museums or museums renowned for their ornithological collections.

Observation records - Records were obtained from a summary of the JOTR Personal Observation Record log, which contains documentation of informal observations made by park staff and visitors. Observation records from Chuck Adams' personal bird list from 1955 and 1956, archived at JOTR's library, were also searched. Since individual observers vary greatly in identification skills, only records from observers of known qualifications were accepted as verifying a species' occurrence.

Literature searches - Literature searches for relevant bird records were conducted primarily through BIOSIS Previews, a database that searches all ornithological journals back to 1969. The Science Library, University of California, Riverside, the library at JOTR, and the Cooper Ornithological Society's searchable on-line archives of *The Condor* were also searched.

Survey records - Records from the Breeding Bird Survey 1970-2000 and Christmas Bird Count 1967-1999 that included areas within or immediately adjacent to JOTR were reviewed. An additional list of potential-but-unverified species from Personal Observation Records was created for observations where the qualifications of the observer could not be verified. Additional species reported as occurring in the Mojave Desert, usually as transients or vagrants, by Garrett and Dunn (1981) or Sibley (2000) were also noted.



Great-Horned Owl - photo courtesy Michael Vamstad, JOTR

Project Synopsis

Partner: University of California, Riverside
Principal Investigator: Timothy Redman
Documented: 249 Bird Species
Project Duration: 2002 - 2003
Cost: \$6.337

RESULTS AND DISCUSSION

Suitable records document the occurrence of 249 species within Joshua Tree National Park. Of these, 115 species are represented by one or more subspecies and 149 subspecies have been verified. Prior to this inventory 172 (53%) of 322 potentially occurring bird species had been verified within the park. This project increased the percentage of

species verified to 81.4%, when considering species as the taxonomic unit of interest. If subspecies is used as the unit of interest, 83.2% of subspecies have been documented. At this time, 57 species have been identified that use the park for breeding. Five species, which appear on the potential-but-unverified list, are known to breed regionally near the park. It is indicated that these species might potentially use habitats within the park for breeding although we believe this to be unlikely.

The museum search found 1022 records with documentation of 128 species. Nine of the 20 museums queried held relevant records, with regional museums making the largest contributions. Observation records documented the occurrence of 221 species. Subspecies designations were ignored. Thirteen qualified observers were responsible for 1721 records. Eleven literature sources documented the occurrence of 187 species. Eight of these sources appear as published documents and three sources appear as reports to an institution. A total of 4061 observations were created from these sources. Records from the Breeding Bird Survey and Christmas Bird Count report the occurrence of 74 and 134 species, respectively. One important note about these surveys is that both are volunteer based efforts and the skills of individual volunteers are not necessarily substantiated. Consequently, these surveys are prone to suffer from identification errors. For example, there is a record for the Veery from the Christmas Bird Count that is viewed suspiciously.

The Breeding Bird Survey route is standardized to a length of 24.5 miles. During Christmas Bird Counts, a 25 mile diameter circle is searched during a single day by groups of volunteers. In either case, it is usually not possible to determine the location of an observation from the information reported by these surveys.

In total, 6814 separate records from these sources have been uploaded to NPSpecies.



Long-eared Owl - Photo courtesy Michael Vamstad, JOTR

RECOMMENDATIONS AND FUTURE WORK

Maintaining a list of potential bird species for Joshua Tree National Park should be viewed as an ongoing endeavor. As time progresses it can be expected that species will be added to the list of those verified and others will be removed from the list of potential-but-unverified.

Goals for the near future should include obtaining a list of specimens from the San Bernardino County Museum. Many expect that this institution probably holds numerous specimens collected within the park's boundaries. This collection is currently unavailable for query, but electronic queries will be possible within the next year.

It is believed that most of the species that are using JOTR on a regular basis have been appropriately demonstrated to occur there. Efforts to document additional species, those appearing on the potential-but-unverified list, will most likely prove to be difficult and costly with little reward. The best strategy for documenting most of these potential-but-unverified species would be to continue to review and monitor the observations recorded by local bird enthusiasts.