
Draft Report on the Baseline Avian Inventory, Mojave National Preserve in San Bernardino County, California.

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EXECUTIVE SUMMARY

This report provides results of an in-depth investigation of the presence or potential presence of avifauna in the Mojave National Preserve, San Bernardino County, California. The goal of this effort was to organize existing information and collect new information via data mining in support of the inventory of avian species within the Preserve. To achieve this goal we searched, museum records (voucher specimens), breeding bird surveys (BBS), Christmas Bird Counts, published and unpublished reports, literature search of all avian research conduct at and surrounding the Preserve, and local and regional checklists were reviewed to document the occurrence of avian species within the boundaries of Mojave Preserve. This effort built upon results of a preliminary inventory effort conducted by Esque and Andre (2001).

Voucher specimens or other documentation demonstrate the occurrence of 300 confirmed species present in the park, 19 species are probably present and one confirmed historic record. We found that 103 records were unconfirmed, of those unconfirmed records, 29 were observed outside the Preserve, 27 were recorded by the Esque and Andre report with out a citation and 47 were unconfirmed subspecies (Appendix 6). Under this project we documented two new species to be present in the Preserve, eight species were probably present and two species that are still unconfirmed within the Preserve. Presently, 74% of all species that are expected to occur within Mojave National Preserve have been documented or vouchered as being present or probably present. Information collected was entered into the NPSpecies and NatureBibdatabases.

In addition to the information collected in this project, future field avian inventory efforts should be conducted at Mojave National Preserve. Additional effort should include the documentation of all breeding species listed in this report and all rare and secretive species. Most bird survey methods provide extensive information for common species, but little or no data on rare or secretive species. This does not mean the survey method is invalid. Rather, it is a reflection of the difficulty of sampling rare and secretive species using methods such as variable point count surveys. Therefore, additional avian inventory should include incidental surveys in all habitat types and tape playback surveys of secretive and rare species during peak breeding periods to increase the chance of detecting these rare and secretive species that occur in the Preserve.

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INTRODUCTION

The National Park Service (NPS) is charged with the stewardship of federal lands to protect natural resources for the benefit and enjoyment of the public. Inherent in this mission is knowledge of the biota inhabiting the Parks. Inventory and monitoring (I&M) programs are the basis for documenting and understanding the flora and fauna of the national Parks and their representative ecosystems. The NPS Inventory and Monitoring Program, formally initiated in 1992, was created to “chart the course and provide the leadership and information resources needed by the NPS to preserve and protect the natural resources placed under its trust (National Park Service 1992).” To accomplish this goal, the NPS I&M Program was designed to coordinate systematic efforts to acquire 12 basic data sets for Parks with significant natural resources, including: basic information on air and water quality; base cartography; weather data; geology; soil and vegetation maps; a natural resource bibliography; and information about the occurrence, relative abundance, and distribution of vertebrate and vascular plant species. In addition, with the passing of the National Park Omnibus Management Act in 1998, Congress mandated a program to establish baseline inventory and monitoring information on the condition of National Park System resources.

Within the NPS, a total of 270 National Park units (i.e., Preserves, monuments, recreation areas, historic sites, etc.) have been identified as having significant natural resources, and these were divided into 32 groups or “networks” based on geographical proximity and similarity of habitat types. This project is part of the Mojave Inventory and Monitoring (I&M) Network, which consists of seven parks and monuments, these include: Death Valley National Park; Great Basin National Park; Joshua Tree National Park; Lake Mead National Recreation Area; Manzanar National Historic Site; Mojave National Preserve (MOJA); and Grand Canyon-Parashant National Monument.

In order to accomplish the goals of establishing baseline inventories and implementing monitoring, the National Park Service has established three objectives for NPS inventories, which include the Mojave Network. These objectives are:

1. To document the occurrence of at least 90 percent of the species of vertebrates and vascular plants currently estimated to occur in the Park.
2. To describe the distribution and relative abundance of species of special management interest occurring within Park boundaries. This includes species of special concern, such as threatened and endangered species and exotics.
3. To provide baseline information needed to develop a monitoring strategy and design that can be implemented by Parks once inventories have been completed.

Previous Work

In 2001, a preliminary investigation of the presence or potential presence of vascular plants and vertebrate animals in Mojave National Preserve (MOJA), California was completed (Esque and Andre 2001). This baseline inventory was accomplished by a team of experts including: Jim Andre (Botany, coordination), Hal Avery (herpetology and mammalogy), Valerie Soza (Botany), Tim Redman (ornithology), Jason Sexton (literature and database access), Kimberley Goodwin (database management and information transfer to internet) and Todd Esque (coordination, herpetology and mammalogy). In order to complete this baseline inventory, this project queried museums, the scientific literature, local and regional vascular plant and vertebrate lists, and experts in the field to complete this baseline inventory.

OBJECTIVES

The purpose of this project was to conduct additional in-depth data mining activities on the occurrence of birds at MOJA and to review and update the NPSpecies database according to standard NPS quality assurance procedures. Our efforts were: 1) to build and expand upon the work completed by Esque and Andre (2001) with the overall goal of increasing the level of documentation on the occurrence of birds; 2) determining the accuracy of that documentation; and 3) determining the percent of species documented in the Preserve.

This project also focused on examining the Park Service Inventory and Monitoring objectives with respect to documenting at least 90% of bird species that occur in Mojave National Preserve. This included data mining of additional published and unpublished literature, museum collections, existing databases documenting birds, documented observations, and review of the Preserve's observation cards. Special attention was also given to identifying all species of concern that occur in or adjacent to the Preserve. We also searched for information that Esque and Andre may have overlooked or did not investigate.

We hope that These data-mining techniques will also help build upon baseline information needed to find gaps in the avian inventory that may require additional field investigations and also help develop an avian monitoring strategy for the Preserve.

In addition, all information collected during this project was to be entered into the NPSpecies database, and all sources used were to be entered into NatureBib. NPSpecies is the NPS database used to store, manage, and disseminate scientific information on the biodiversity of organisms in each Park Service unit; the NatureBib database is a web-based database for scientific citations presented as bibliographic references.

DATA MINING METHODS

Through this data mining process, we recorded all avian species documented to occur within or in close proximity to the Preserve, and determined the species status (e.g., present in Preserve, probably present historic, etc.), abundance, and residency and nativity (Appendix 4)

Literature searches

We searched all institutions listed in Esque & Andre (2001) and those listed in the task Agreement, including California State University, Fullerton; Los Angeles County Museum of Natural History; Granite Mountains Desert Research Center; University of California, Los Angeles Biomedical Library; BLM California Desert District Library; BLM Needles Field Office; University of California, Riverside; University of Nevada, Las Vegas libraries; Northern Arizona University Cline Library, and Brigham Young University. We also searched on-line journal archives (e.g. *The Condor.*), web sites (e.g. Nature Conservancy and the BLM National Library).

For all searches, we used the key word list created by Esque and Andre (2001). This list appears in Table 1. Prior to its recent formation, the land within the Preserve had been managed by several different agencies, therefore it was necessary to search a wide array of key words in order to find specimens that were historically collected in or near the Preserve.

Table 1. Locations searched for bird species within or near Mojave National Preserve. List generated by Esque and Andre (2001) and during Mojave National Preserve baseline avian inventory, 2005.

Castle (peaks)	Cedar Canyon
Cima	Cinder Cones
Clark Mountain	Clipper Valley
Cowhole	East Mojave (also National Scenic Area)
Fenner	Gold Valley
Granite (also Mountains and Wells)	Fourth of July Canyon
Halloran	Ivanpah
Kelso (also Dunes)	Kessler (also Springs)
Kingston Range (potential species)	Lanfair Valley
Marl Mountains	Mescal Range
Midhills	Mitchell Caverns
Mojave (also National Preserve)	New York Mountain
Old Dad Mountains	Piute Mountains
Providence Mountains	Purdy
Quail Spring	Round Valley
Soda	Warren Well

Museum records

Museum records of bird specimens collected within or adjacent to the Preserve were obtained by querying on-line databases maintained by museums, or by making direct inquiries to curatorial staff associated with regional museums. For this reason, it was not necessary to conduct on-site visits. All museums listed in the Task Agreement for this project were searched. Regional museums or museums renowned for their ornithological collections were also queried due to their readily available on-line databases. A complete list of museum collections searched is included in Appendix 1.

The keyword list (established by Esque and Andre 2001) used in all literature searches was also used for the museum searches (Table 1). All voucher records were then assessed to verify the collection location (i.e., was the specimen collected within or near the current MOJA boundaries).

Observation records

Observation records in this report were categorized as either informal observations or organized surveys.

Informal observation records included unofficial surveys and checklists. Since the reliability of observational records can vary according to the observer, observational data were also categorized as being collected either by a qualified professional ornithologist or by a hobbyist.

Organized surveys include data collected according to established methods or protocols recognized by the American Ornithological Union (AOU). We reviewed survey records collected during Breeding Bird Surveys (BBS) 1970-2000 (U.S. Fish and Wildlife Service; Appendix 2) and Christmas Bird Counts 1967-1999. Many of these surveys were conducted within or immediately adjacent to the Preserve boundaries. We also reviewed site-specific bird surveys conducted by BLM staff and hired contractors (Table 5). These surveys were conducted at specific locations within the Preserve.

NPSpecies Documentation

Upon documenting and compiling all literature references, museum vouchers, and observations, we updated avian records in NPSpecies according to the NPSpecies protocol. Each species' status was reviewed according to the level of documented evidence, the depth of that evidence and the reliability of the observer. If a species was a reliable documented sighting (i.e. trained biologist) within the Preserve boundaries and was determined to be a winter resident, summer resident, breeder, or migrant, its status was listed as Present in the Preserve. If a species was documented just outside of the Preserve boundaries, but is also likely to occur in the Preserve, it was documented as probably present. However, if the species could not be verified to occur in the Preserve, it was defined as unconfirmed. In most cases, subspecies designation can be verified by

characteristics that are observable only when a bird is in-hand. Because of this, the use of subspecies is potentially misleading. Therefore, we did not recognize subspecies designations in this summary (i.e. do not assume an individual belongs to a given subspecies because that subspecies commonly occurs).

Abundance, Residency, and Nativity were all determined based on the definitions in the NPSpecies dictionary and evaluation of the documented evidence.

RESULTS

We evaluated a total of 433 bird records and determined the species status (e.g., present in Preserve, probably present historic, etc.), abundance, and residency and nativity (Appendix 5). Suitable records document the occurrence of 300 species within Mohave National Preserve. Nineteen species are probably present, yet further documentation is needed to verify if they are present in the park. We determined that one species is documented as a historical record. We found 103 unconfirmed records. Of those unconfirmed, 29 species were recorded outside the Preserve and require further documentation if they are actually present within the Preserve. We also found 27 species were recorded as present in the park or probably present by Esque and Andre (2001), however, these records were without a citation to verify that documentation. We found that 25 species are represented by one or more subspecies of which 47 subspecies were determined unconfirmed. We also found that 10 species were falsely recorded because of species name changes. This project also documented an additional three species Present in the Preserve, six probably present and two species unconfirmed within the Preserve (Table 2). An additional six species were added to the probably present outside the Preserve list. A summary of each species, species status, abundance, residency, and nativity are compiled in Appendix 5.

Table 2. Bird species added to Mohave National Preserve list for; Present in Preserve, Possibly in the Preserve, Unconfirmed in the Preserve and probably present outside the Preserve.

Present in the Preserve	Probably Present, Unconfirmed or Historical in the Preserve	Probably Present Outside the Preserve
Zone-tailed Hawk	Wood Stork – Probably Present	Cackling Goose
Bobolink	Black-legged Kittiwake – Probably Present	Inca Dove
Abert’s Towhee	Black Rail - Probably Present	Dusky-capped Flycatcher
	California Spotted Owl - Probably Present	Streak-backed Oriole
	*California Condor - Historical	Tropical Kingbird
	Curve-billed Thrasher - Probably Present	California Thrasher
	Nuttall’s Woodpecker -Unconfirmed	
	Ringed Turtle Dove – Unconfirmed	
	Eastern Phoebe - Probably Present	

* A voucher specimen for this species is present at the Western Foundation of Vertebrate Zoology. Its status is listed as “Historic” in the NPSpecies database.

At this time, 64 species have been identified to use the Preserve for breeding, 42 species are identified as residents, 108 species are identified as migrants, and therefore use the Preserve as stop over habitat, and 27 species are vagrants. The residency status of 192 species are either unknown, exist outside the Preserve or are identified incorrectly (Appendix 5).

Below we provide the results of our data-mining effort using literature records, museum vouchers, and species observations. Through the use of these resources, we determined that 74% of all potentially occurring bird species have been documented in Mojave National Preserve. This number is based on species records that have been confirmed to be present in the Preserve, probably present or had historically been present. To determine the number of species confirmed we excluded unconfirmed and falsely reported records.

Literature

A total of six literature sources were cited in our literature search that yielded 192 records (Table 5). This effort contributed one additional species detected within Mojave Preserve (Nuttall's Woodpecker) and one detected outside the Preserve (California Thrasher). "Historical observations from *The Condor*" is a compilation of five articles from this journal. Historical observations near MOJA is a compilation of four articles from "The Condor". Appendix 6 provides complete citations for all literature sources, including each article from "The Condor".

Table 5. Literature sources and the number of records from each source used for the Mojave National Preserve baseline avian inventory, 2005.

Source	No. of records	No. of Species Added to Inventory
Curry, B. 1983. The Old Dad – Kelso Mountain Resource Survey. University of California, Santa Barbara. 477 pp.	--	No new species recorded
Grinnell, J. 1933. Review of the recent mammal fauna of California. University of California Publications in Zoology 40: 71-234.	--	No bird records
USDI National Preserve Service, 2000. MOJA General Management Plan.	1	0
Nevada Species of Special Concern	29	0
Historical Observations from <i>The Condor</i>	17	California Thrasher
Historical Observations near MOJA	145	California Thrasher, Nuttall's Woodpecker
TOTAL	192	2

Museum Vouchers

Previous work had queried five museums for vouchered specimens (Table 6). An additional 10 museums were queried during this project (Table 6). Our museum queries

yielded 178 records that provided documentation for 99 species. However, none of these records added any species to the current species list. Four museums did not provide any specimens collected from within present MOJA boundaries, however, the Museum of Vertebrate Zoology contained 134 vouchered specimens.

Table 6. Summary of museums queried. Shaded lines are museums searched by Esque and Andre (2001), Unshaded museums were searched under this project, Mojave National Preserve baseline avian inventory, 2005.

Museum	No. of Records	Comments
Burke Museum, University of Washington	0	No specimens
Carnegie Museum of Natural History, Pittsburgh, PA	0	No specimens
Laboratory of Ornithology, Cornell University	0	No specimens
Museum of Vertebrate Zoology	134	
Slater Museum of Natural History, University of Puget Sound	0	No specimens
Brigham Young University	0	No specimens
California Academy of Sciences	10	
Los Angeles County Museum	60	Voucher specimens within and near Preserve boundaries.
New Mexico Museum of Southwestern Biology	0	No specimens
Northern Arizona University	--	No response from curator
San Bernardino County Museum	--	No response from curator
San Diego Museum of Natural History	0	No specimens
UNLV Barrick Museum	0	No specimens
Western Foundation for Vertebrate Zoology	103	Voucher specimens and egg collections
Yale Peabody Museum	5	
TOTAL	312	

Database Observations

Records from the Breeding Bird Surveys within Mojave National Preserve report the occurrence of 68 species (Sauer et al. 2004); Breeding Bird Surveys and Christmas Bird Counts near the current MOJA boundaries report the occurrence of 86 and 134 species, respectively (Table 7). One important note about the Breeding Bird Survey and Christmas Bird Count 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.

Table 7. Summary of bird records and surveys at or near Mojave National Preserve, 2004. Type of bird survey listed and the number of species recorded from each survey, Mojave National Preserve baseline avian inventory, 2005.

Type of survey	Number of Species
Breeding Bird Surveys within MOJA, 1966-2001	68
Breeding Bird Surveys near MOJA, 1966-2001	86
Christmas Bird Counts near MOJA	134
California Desert Conservation Area Surveys, BLM	176
Providence Mountains Surveys, BLM	143
Afton Canyon Surveys, BLM	183
California Desert Surveys, BLM California District Office	175
Fort Irwin Surveys	135
Piute Creek Surveys (1976)	104
TOTAL	1204

Species of Concern

There are five threatened or endangered species that were found within MOJA or in the proximity of the Preserve. Below we will discuss the status of each species and additional inventory recommendations that may apply for each species.

- Bell’s Vireo, Present in Preserve, migrant (subspecies status unknown, *Vireo bellii pusillus?*), status: Subspecies *Vireo bellii pusillus* U.S. Federally Endangered Species; California Endangered Species.
- Willow Flycatcher, migrant (subspecies status unknown, *Empidonax traillii extimus?*), status: Subspecies *Empidonax traillii extimus* U.S. Federal Threatened Species; California Endangered Species.
- Yellow-billed Cuckoo (*Coccyzus americanus occidentalis*), migrant, status: U.S Federal Endangered Candidate Species; California Endangered Species.
- Bald Eagle (*Haliaeetus leucocephalus*), Probably Present, status: U.S. Federal Threatened Species; California Endangered Species.
- California Condor (*Gymnogyps californianus*), Historic observation, status: U.S. Federal Endangered Species; California Endangered Species.

The Least Bell’s Vireo (*Vireo bellii pusillus*) and Southwestern Willow Flycatcher (*Empidonax traillii extimus*), in California and Nevada are federally listed as Endangered Species and species of concern in the State of California (USFWS 1986, USFWS 1993). The Western Yellow-billed Cuckoo (*Coccyzus americanus occidentalis*) has been designated as a federal candidate species under the Endangered Species Act (USFWS 2002) and is listed as a species of concern in the State of California. Bell’s Vireos, Willow Flycatchers and Yellow-billed Cuckoos have been periodically documented in riparian areas such as Piute Spring during migration, but have not been verified to breed within the Preserve. Each of these species require broad riparian cover, which is limited

within the Preserve. However, the riparian habitat that does exist in Mojave National Preserve may provide stopover habitat during migration for each of these species.

The rigors of migration often push birds to their physiological limits, and the lack of suitable stopover habitat may result in death and contribute to future population declines (Moore 1990). During migration, many neotropical migrants such as the Bell's Vireo, Willow Flycatcher and Yellow-billed Cuckoo may travel distances as far as 14,400 km (9000 mi), and therefore require adequate stopover areas along the way to supplement energetic requirements. Migration is a period of exceptional energy demand, and small landbird migrants generally do not deposit enough fat to fly without stopping between breeding and wintering areas (Berthold 1975). Hence, availability of suitable habitats (e.g., riparian zones) where depleted fat stores can be safely and rapidly replenished becomes critical to a successful migration for most neotropical migrants

Adequate stopover habitat for an individual must have: 1) enough food to meet its energetic requirements; 2) vegetative cover to avoid predation; and 3) sufficient uniform habitat to replenish fat reserves efficiently (Moore and Yong 1991). Adequate stopover habitat may also be restricted and limiting in areas in which the migrant must overcome many geographic barriers (e.g., deserts, mountain ranges, large bodies of water; Moore 1991).

The riparian corridors in the Mojave National Preserve may serve as essential migratory stopover sites since considerable geographic barriers exist (e.g., large areas of inhospitable arid habitats) in the region. Therefore, the habitat in the Preserve provides migrating Bell's Vireos, Willow Flycatchers, Yellow-billed Cuckoos and other migrating species with essential resources for successful migration.

Despite the lack of recent documentation of these species in the Preserve, future inventory effort for these species should be included and if they are documented, they should be included in future monitoring of each of these species in addition to all riparian avifauna.

Other species of concern that have been detected in the vicinity of the Preserve include Bald Eagle (*Haliaeetus leucocephalus*), California Condor (*Gymnogyps californianus*), The Bald Eagle has been detected in recent years within the vicinity of the Preserve, yet its status in the Preserve is unknown. Additional inventory and future monitoring efforts are recommended to determine whether or not they occur in the Preserve. California Condor detections are based on historic detections and future monitoring of this species should be of concern as this species continues to recover.

RECOMMENDATIONS

The following are recommendations for future research that could further improve the MOJA bird species inventory.

- We recommend that landbird monitoring in MOJA be part of the National Park Service monitoring plan for the Mojave network.
- To assist in MOJA's resource management planning, we also recommend examining the checklist status and abundance of the birds documented in this project for species of conservation concern for this region. We especially recommend that resource management actions and monitoring efforts take into account those species that are recognized as high priorities by the national conservation initiative for landbirds under the Partners In Flight Program (www.partnersinflight.org). Monitoring of these species should be integrated with ongoing regional efforts, but in some cases, the Preserve may need to develop monitoring plans specifically for MOJA due to the general lack of information and monitoring coverage for these species.
- Most owl species were listed as "Probably Present" in this report. Because of their nocturnal nature, owls are undercounted in most bird surveys. It would be valuable to conduct nighttime surveys during the breeding season of most owls (early to mid spring), either using passive survey techniques or tape playback of calls, in order to confirm which species occupy the Preserve. Also, poorwills and night-hawks are better assessed during crepuscular and night surveys than during daytime survey periods.
- A number of songbirds and other diurnal landbirds were surprisingly rarely recorded or unconfirmed. Many of these species may be in such low numbers that they are not regularly detected or they may be very secretive and are just difficult to detect. Methods such as tape playback may be required to determine if these species are present. Therefore, we recommend further survey work confirm whether these species are present in the Preserve and to determine their breeding status, if they are present.
- We also recommend that water bodies within the Preserve are visited regularly to determine the presence of additional shorebirds and migrants. Although species richness of these groups will never be that high for the Preserve, there was uncertainty in our data mining project as to which of these species were actually present within the Preserve boundaries.

ACKNOWLEDGEMENTS

We want thank the Mojave National Preserve; Colorado Plateau Research Station; and the Colorado Plateau Cooperative Ecosystem Studies Unit (CPCESU) at Northern Arizona University for their support and the funding of this project. We also want to thank Kristina Heister, Mojave Inventory & Monitoring Network Coordinator and the Mojave National Preserve personnel for their assistance during this project. We also wish to thank Craig Palmer and Simon Kingston for their help with the NPSpecies database, and Brian Croft at BLM who provided several sources of observational data.

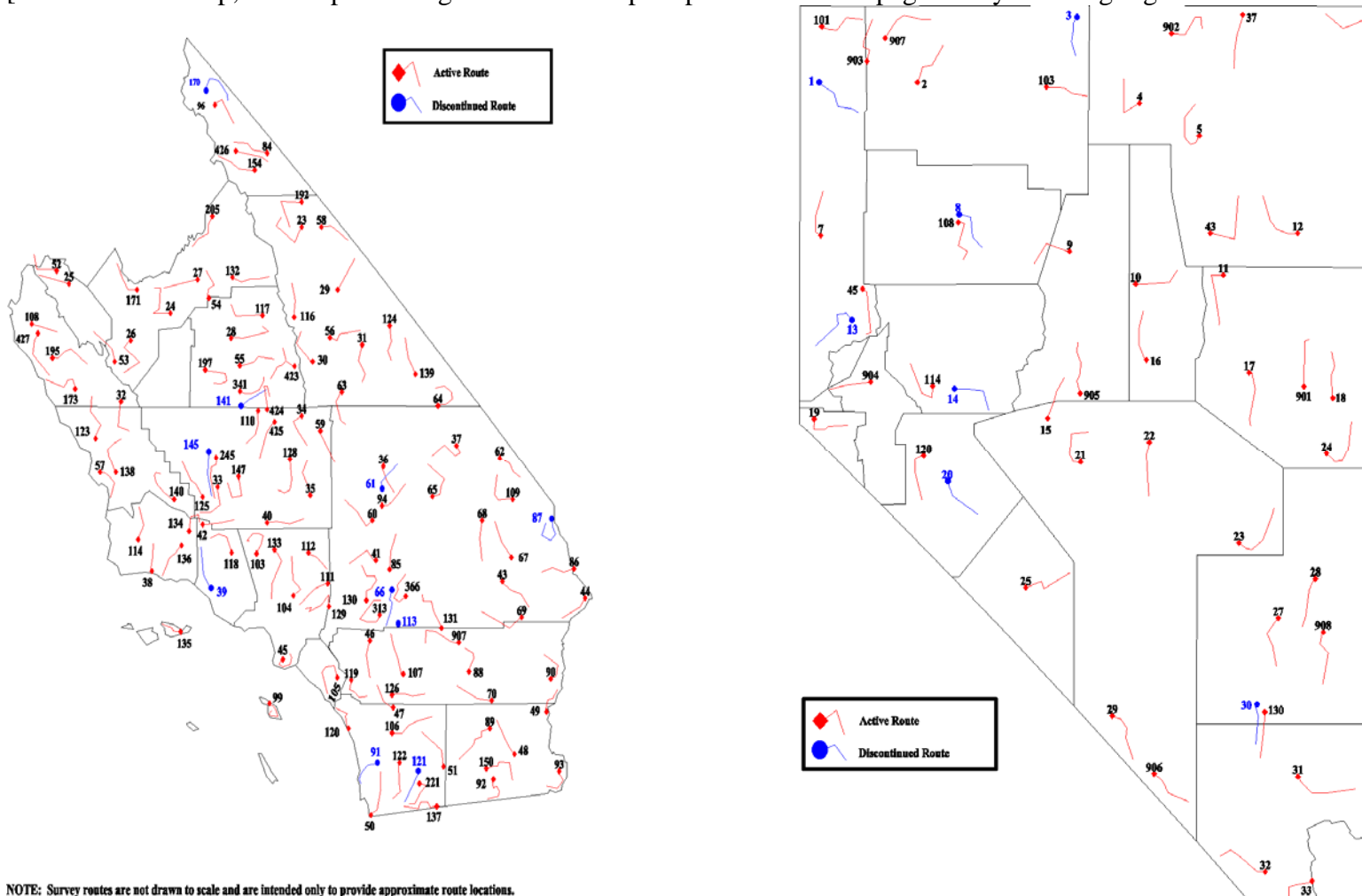
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Appendix 1. Museums searched for voucher specimens at Mojave National Preserve for MOJA baseline avian inventory, 2005. Contact type included either email or phone call). Comments included file names of the electronic database file.

NAME OF INSTITUTION	CONTACT NAME and NOTES	COMMENTS
Brigham Young University Ornithological Collection	emailed Clayton White	NO SPECIMENS
California Academy of Sciences	Searched collection online, results in CAS Ornithology-SanBernardinoCo-mojave.htm	CAS Ornithology-SanBernardinoCo-mojave.htm (or Vouchers-CalifAcadSci.xls)
Los Angeles County Museum	emailed K. Garrett 10 Nov & 3 Feb; responded 9 Feb; he sent me subset of specimens collected in San Bern Co. 10 Feb. [Kimball Garrett is a "he"]	LACM collection-SanBernCo.xls
New Mexico Museum of Southwestern Biology	emailed Cindi Ramotnik - nothing in USGS collection, suggest I contact Dr. Robert Dickerman; sent two emails 2 Dec & 3 Feb.	NO RESPONSE [you did have a response, according to previous column]
Northern Arizona University Biology Department, Ornithological Collection	emailed Lara Dickson 3 Feb; emailed Theimer 5 Feb	NO RESPONSE
San Bernardino County Museum	emailed Gerald Braden 10 Nov, 3 Feb, 26 Feb.	NO RESPONSE
San Diego Museum of Natural History	email; Phil Unitt responded; I sent him location info so he can query db; he is sending results of SB County search; sent reminder email 3 Feb	NO RESPONSE
UNLV Barrick Museum	emailed J. Klica 25 Nov & 3 Feb; email returned; emailed Museum Director, Donald Baepler; responded "No specimens from San Bern Co."	NO SPECIMENS FROM SAN BERNARDINO COUNTY
Western Foundation of Vertebrate Zoology (esp. egg collection)	emailed; Rene Corado responded; I sent her location info so she can query db; sent 2 dbs, eggs and birds	SanBernardino-EGGS.xls; SanBernardino-SKINS.xls
Yale University, Peabody Museum		YaleUniv-PeabodyMus.xls

Appendix 2. Breeding Bird Survey route maps used for Mojave National Preserve baseline avian inventory, 2005. Survey route numbers 62, 67, 68, 87, and 109 (highlighted in yellow) are located within current MOJA boundaries. Survey route numbers 32, 33, 37, 43, 85, 86, and 94 (highlighted in blue) are located outside current MOJA boundaries. The map on the left lists routes in southern California; the map on the right lists routes in Nevada. Maps were downloaded from the USGS Patuxent Wildlife Research Center – North American Breeding Bird Survey website at <http://www.pwrc.usgs.gov/bbs/results/routemaps/>. [Leave out NV map, and crop & enlarge California map on portrait oriented page. No yellow highlights are visible on this copy]



Appendix 3. Latitude and Longitude coordinates for Christmas Bird Counts outside the current MOJA boundaries. The Years column is the year's bird counts were conducted at these locations. Data was retrieved for the Mojave National Preserve baseline avian inventory, 2005. Data was retrieved from the website:
http://infohost.nmt.edu/~shipman/z/abc/abcx/aspbx_ca.html

CIRCLE NAME	ST	LAT	LONG	YEARS
Death Valley N.M.	CA	N 36 deg, 31 min	W 116 deg, 51 min	40-41, 58-59, 60-62,64-66,68
Death Valley, CA	CA	N 36 deg, 27 min	W 116 deg, 52 min	73-74,76-91,93-98

Appendix 4. Definitions of bird species classifications used in the NPSpecies data dictionary for the Mojave National Preserve baseline avian inventory, 2005.

NPSpecies has specific definitions for classifying a species' status, abundance, residency, and nativity. These definitions are provided below. Following the definitions are interpretations that we used in assigning the status of bird species at Mojave National Preserve.

STATUS

Present in Preserve

Species' occurrence in Preserve is documented and the species is assumed to be extant (i.e. still occurring within the Preserve). This category was used for species that had reliable documented evidence of occurring within current MOJA boundaries.

Historic

Species' historical occurrence in the Preserve is documented, but recent investigations indicate that the species is now probably absent.

Probably Present

Preserve is within species' range and contains appropriate habitat. Documented occurrences of the species in the adjoining region of the Preserve give reason to suspect that it probably occurs within the Preserve.

Unconfirmed

Included for the Preserve based on weak ("unconfirmed record") or no evidence, giving minimal indication of the species' occurrence in the Preserve.

False Report

Species previously reported to occur within the Preserve, but current evidence indicates that the report was based on a misidentification or a taxonomic name that is no longer accepted.

Encroaching

The species is known to be adjacent to, but not in the Preserve, and has a great potential to occur in the Preserve. [Is species expanding its range?? "Encroaching" suggests that.]

ABUNDANCE

Abundant

May be seen daily, in suitable habitat and season, and counted in relatively large numbers.

Common

May be seen daily, in suitable habitat and season, but not in large numbers.

Uncommon

Likely to be seen monthly in appropriate season/habitat. May be locally common.

Rare

Present, but usually seen only a few times each year.

Occasional

Occurs in the Preserve at least once every few years, but not necessarily every year.
Used for vagrant species and exceptionally rare species.

Unknown

Abundance unknown.

N/A

This abundance category is only used for species with a status other than “Present” or “Probably Present”.

RESIDENCY

Breeder

Population reproduces in the Preserve.

Resident

A significant population is maintained in the Preserve for more than two months each year, but it is not known to breed there.

Migratory

Migratory species that occurs in Preserve approximately two months or less each year and does not breed in the Preserve.

Vagrant

Preserve is outside of the species' usual range.

Unknown

Residency status in Preserve is unknown.

N/A

This residency category is only used for species with a status other than “Present” or “Probably Present”.

NATIVITY

Native

Species is native to area or species is native to North America.

Non-native

Species is not native to the area or species is not native to North America and was introduced after European colonization.

N/A

This nativity category is only used for species with a status other than “Present” or “Probably Present”.

Appendix 5. Species list retrieved from NPSpecies, National Park Service. Species highlighted in green are listed as subspecies requiring further status verification for Mojave National Preserve baseline avian inventory, 2006.

Appendix 6. Complete literature citations [lower case] used to support Mojave National Preserve baseline avian inventory, 2005.

Curry, B. 1983. The Old Dad – Kelso Mountain Resource Survey. University of California, Santa Barbara. 477 pp.

Fish, W. 1950. Nesting record of the Vermillion Flycatcher in the Northern Mohave Desert. *The Condor* 52: 137-138.
Comment: Historical observations in MOJA.

Grinnell, J. 1901. Midwinter birds at Barstow. *The Condor* 3: 70-71.
Comment: Historical observations near MOJA.

Hanna, C. 1936. California Thrasher Nesting on the Mohave Desert. *The Condor* 38: 220.
Comment: Historical observations in MOJA.

Hunt, R. 1920. An ovenbird on the Mohave Desert. *The Condor* 22: 190-191.
Comment: Historical observations in MOJA.

Jaeger, E. 1947. A Second Record of the Oven-bird on the Mohave Desert. *The Condor* 49: 244.
Comment: Historical observations in MOJA.

Lamb, C. 1912. Birds of a Mohave Desert oasis. *The Condor* 14: 32-40.
Comment: Historical observations near MOJA.

Mailliard, J., and Grinnell, J. 1905. Midwinter birds on the Mojave Desert. *The Condor* 7: 71-77.
Comment: Historical observations near MOJA.

Mailliard, J., and Grinnell, J. 1905. Midwinter birds on the Mojave Desert (concluded from page 77). *The Condor* 7: 102-103.
Comment: Historical observations near MOJA.

Miller, A.H. 1940. A transition island in the Mohave Desert. *The Condor* 42: 161-163.
Comment: Historical observations in MOJA.

USDI Bureau of Land Management, California Desert District. 2002. NEMO (Northern and Eastern Mojave Planning Area) CMP/FEIS Appendix I--Species of Special Status: I1-I7.

USDI National Preserve Service. 2002. Mojave General Management Plan. 155 pp.
Downloaded from the following NPS website:
http://www.nps.gov/moja/mojafeis3/Mojave_NP_GMP.htm
Comment: No avian species list – just a general plan for the Chukar.