

3-31-2006

## Lake Mead National Recreation Area Sensitive Wildlife Species Monitoring and Analysis: Quarterly Progress Report, Period Ending March 31, 2006

Margaret N. Rees  
*University of Nevada, Las Vegas, peg.rees@unlv.edu*

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### Repository Citation

Rees, M. N. (2006). Lake Mead National Recreation Area Sensitive Wildlife Species Monitoring and Analysis: Quarterly Progress Report, Period Ending March 31, 2006. 1-8.  
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## **QUARTERLY PROGRESS REPORT**

University of Nevada, Las Vegas  
Period Ending March 31, 2006

Cooperative Agreement Number H8R07010001  
Task Agreement Number J8R07050011  
Lake Mead National Recreation Area  
Sensitive Wildlife Species Monitoring and Analysis

### **Executive Summary**

- Research Assistant Professor hired to oversee NPS wildlife monitoring programs and serve as overall program coordinator for UNLV monitoring programs at Lake Mead National Recreation Area.
- Final report completed for 2004-2005 desert tortoise monitoring project.
- Final report completed for 2004-2005 relict leopard frog management.
- Recommendations for vegetation management research to improve relict leopard frog habitats at North Shore springs made to NPS Management Team
- Breeding surveys for relict leopard frog and egg collections for head-starting program completed.
- Final report completed of 2004-2005 monitoring efforts on peregrine falcons.
- Final report completed on 2004-2005 bald eagle monitoring.
- Bald eagle survey for 2006 successfully conducted.
- Final report completed on 2004-2005 monitoring efforts on upland, lowland, and riparian bird species, including monitoring of southwestern willow flycatchers
- 22 monthly site surveys of shorebirds conducted.
- Point counts for research project on several bird species of concern conducted at 84 sites across Clark County.
- Coordination and consultations to refine field methods for bird monitoring and research conducted.

### **Program Activities**

The task agreement was awarded to UNLV on October 1, 2005. During the past quarter, ending March 31, 2006, the following activities have occurred toward meeting deliverables in the statement of work.

#### Hiring

In Fall 2005, the university undertook a search for a Research Assistant Professor to serve as the overall program coordinator of the wildlife and vegetation monitoring agreements and to teach in

the UNLV Department of Biological Sciences. Kent Turner of the National Park Service served on the university search committee. The committee reviewed applicants through January 2006 and arranged to interview three candidates on February 1 and 2, 2006. The search committee recommended hiring Dr. Jef Jaeger from UNLV (who had previously served as Interim Program Coordinator), and this recommendation was seconded by the Biology Department. Dr. Jaeger will formally assume the coordinator's position on April 1, 2006.

### Desert Tortoise Mitigation and Monitoring

This section summarizes biological monitoring and mitigation activities (compliance monitoring) conducted by Public Lands Institute (PLI) employees for desert tortoise and desert tortoise habitats associated with various construction and right-of-way activities within Lake Mead NRA during the first quarter of 2006 (through March 22, 2006). The active construction projects during this period included the North Shore Road Reconstruction Project and land/water test drilling by the Southern Nevada Water Authority (SNWA). Other activities that required some compliance monitoring during this quarter included a power line replacement project by Nevada Power Company and cell tower antennae work by Sprint/Nextel.

#### A. Areas Surveyed for Desert Tortoise Related to Construction Project

Surveys for desert tortoise at the North Shore Road Reconstruction Project were completed prior to this quarter and no new surveys were required during this quarter.

#### B. Desert Tortoise and Habitat Mitigation Measures Monitored During Construction Projects

No live tortoises were observed on any project during this quarter. Three days of topsoil removal and stockpiling occurred on the North Shore Road project. This process was monitored carefully to ensure that the proper depth of topsoil was removed from the desert floor and correctly stockpiled. Monitoring was also conducted to insure that the proper watering technique was employed to create a crust on the stockpile surface to prevent dust and erosion.

#### C. Desert Tortoise Training Provided to Contractors

In the past quarter, a total of 42 desert tortoise training classes were provided to 116 contractor employees working within Lake Mead NRA.

### Desert Tortoise Habitat

During 2004 and 2005, PLI employees conducted a project to remove radio transmitters from desert tortoises remaining from a previous study that took place on Mormon Mesa in 1998. This project was the focus of an MSHCP project for tortoise monitoring within the Lake Mead area (project no. 2003-NPS-229-P-2004). A final report was completed by PLI staff this quarter and provide to the NPS for submission to the MSHCP.

### Desert Bighorn Sheep

This project represents an ongoing Federal Highways Administration funded project to monitor desert bighorn sheep in the vicinity of the Hoover Dam Bypass project and to assess whether and how sheep movements are being affected by construction activities. GPS collars are currently

deployed on individual sheep, which provide a running accumulation of sheep locations that require weekly downloading via satellite for analysis in a GIS. PLI employees have been providing assistance in the form of data stewardship, monitoring, and field support.

This quarter, approximately 12 weeks of data were processed. Data received from the GPS collars were uploaded into the program Argos Data Converter T03 (Telonics, Inc.) and then exported to an Excel spreadsheet and converted into a usable format for ArcGIS. In ArcGIS, data were quality-assured to remove extraneous information (for example, if data were transmitted multiple times) or to filter out bad fixes. Data were then checked to identify sheep deaths or collar malfunctions. Two staff-days were spent this quarter attempting to retrieve a collar from a dead animal and to locate collars with faulty satellite signals.

GIS supports for visual interpretation (i.e., map requests) have been handled by another UNLV employee currently providing support to the NPS and an independent contractor associated with this project.

#### Ungulate Monitoring and Management

No efforts were conducted for ungulate monitoring and management by PLI staff this quarter.

#### Relict Leopard Frog Monitoring, Management and Research

Monitoring and management activities for relict leopard frogs are specified within the Relict Leopard Frog Conservation Assessment and Strategy, with oversight by the Relict Leopard Frog Conservation Team (RLFCT) chaired by the NPS. A PLI research assistant has primary responsibility for implementing monitoring and management actions for relict leopard frogs within Lake Mead NRA as stipulated by an associated MSHCP funded project for 2004 and 2005 (project number 2003-NPS-179-P-2004). A continuation project has been accepted by the MSHCP and our efforts fulfill the appropriate milestones and deliverables for that project during this quarter.

This quarter, the final report for 2004-2005 on relict leopard frog monitoring and management was completed by PLI staff and provided to the NPS for submission to the MSHCP. Efforts to acquire and compile information for the 2005 yearly report for the RLFCT are currently being conducted. In addition, the research assistant (in collaboration with the NPS program manager) presented two talks on this project at regional professional meetings:

- Velez, CE and Haley, RD. Status of relict leopard frogs, *Rana onca*, in Arizona and Nevada. Presentation given at the Declining Amphibian Populations Task Force, California-Nevada Working Group, Humboldt State University, Arcata, California, January 12-14, 2006
- Velez, CE and Haley, RD. Status of relict leopard frogs, *Rana onca*, in Arizona and Nevada. Presentation given at the Joint Annual Meeting of the Arizona/New Mexico Chapters of The Wildlife Society and the American Fisheries Society, Flagstaff, Arizona, February 2-4, 2006.

During this quarter, field efforts consisted of daytime surveys of all natural and experimental frog populations (11 sites total) to look for evidence of breeding in the form of eggs and/or tadpoles. Evidence of breeding activity was documented at 4 of the 6 natural sites and at 3 of the 5 experimental sites. The survey effort at Bighorn Sheep Spring included the collection of eggs for rearing of tadpoles and froglets for reintroduction efforts. A total of 6 egg masses were collected

from Bighorn Sheep Spring in January 2006 and transferred to the rearing facilities at the NPS and at the FWS Willow Beach National Fish Hatchery. Currently, these collections have resulted in approximately 1,700 tadpoles at the NPS facility and 1,050 tadpoles at the FWS facility for future translocation. Table 1 presents a summary of translocation releases to date. In addition, during this quarter PLI staff evaluated several potential springs for their acceptability as experimental translocation sites (Table 2).

**Table 1. Summary of current translocation efforts by site.**

Site Name	Animals Release in 2005	Total Animals Released
Pupfish Refuge Spring, NV	15 frogs	406 since 2003
Sugarloaf Spring, AZ	47 frogs	372 total since 2003
Grapevine Spring, AZ	630 tadpoles	1,535 total since 2004
Goldstrike Canyon, NV	333 tadpoles	1,212 total since 2004
Red Rock Spring, NV	199 frogs	199 frogs total since 2005

**Table 2. Summary of sites evaluated this quarter for experimental translocations.**

Site Name	Date Visited	General Conclusion
Bride Canyon	2/24/06	Little permanent riparian – not likely to retain permanent water
Grapevine Spring, NV (lower)	2/24/06	Currently plenty of water, but little emergent vegetation, thus perennial water may be questionable, but probably worth attempting
Lake Mead Hatchery outflow	1/19/06	Narrow channel, fast flow, dense bank vegetation, not promising unless manipulated. Raceway may make a good refuge – need follow-up.
S. Pipe Spring	2/24/06	Not great - small area of permanent water, ~75m of emergent vegetation, few pools

In addition to the management actions describe above, research to evaluate the impact of vegetation encroachment on relict leopard frogs was completed, and the final report is scheduled for submission to the MSHCP by March 31, 2006. This UNLV project, titled “Evaluation of the Impact of Vegetation Encroachment on Relict Leopard Frog Populations,” was funded by the MSHCP during 2004 and 2005 (project no. 2003-NPS-232-P-2004). Management recommendations based on the findings from this study were presented to NPS Management Team by a PLI staff member on January 24 2006. The recommendation of the NPS team was to move forward with compliance assessments for a proposed research project to set-back session of vegetation along portions of the stream at upper Blue Point and Rogers Springs. A trip to Rogers Spring was conducted on February 27, 2006, to begin assessing locations for potential vegetation manipulations. Findings of this research project were also presented at a regional scientific meeting:

- Harris SM, Jaeger JR, Cross CL, Bradford DF. Habitat selection by the relict leopard frog (*Rana onca*): assessing effects of vegetation encroachment. Presentation given at the Declining Amphibian Populations Task Force, California-Nevada Working Group, Humboldt State University, Arcata, California, January 12-14, 2006.

### Peregrine Falcon Monitoring

Peregrine falcon surveys are conducted from mid-March through mid-July when the birds are reestablishing territories and during their breeding cycle. The purpose of most of these surveys is to assess occupancy of known nesting sites and territories along the shorelines of Lakes Mead and Mohave. Additional areas of shoreline and some mountainous areas are also surveyed to identify new, undocumented territories. The objectives of the monitoring effort are to attain an approximate population estimate for this species within the Lake Mead NRA and to assess reproductive success. Generally at least three nest visits will be conducted at each known territory as prescribed by the U.S. Fish & Wildlife Service (USFWS) in its "Monitoring Plan for the American Peregrine Falcon, a species recovered under the Endangered Species Act." A PLI research assistant has the lead role in conducting this monitoring.

A final report of monitoring activities was completed by PLI staff and delivered to the NPS as part of the deliverables for the MSHCP wildlife monitoring project in 2004 and 2005 (project number 2003-NPS-229-P-2004). This report summarized work completed during 2004-2005 and summarized previous peregrine research in the park. Recommendations for future efforts were included.

Research was started in early March 2006 toward the development of a predictive habitat map of peregrine falcons (an MSHCP deliverable) to be delivered to Clark County by June 30, 2006. The PLI research assistant on this project met with NPS GIS Specialist Mark Sappington on March 2 and March 27, 2006. The plan is to work with the GIS division, shortly after completion of this year's field season, to complete the map. Work to compile all previous historical peregrine data in a spatial context has progressed.

A Wilderness Minimum Requirement Analysis for the Lake Mead NRA wildlife programmatic was completed this quarter in cooperation NPS Environmental Compliance Specialists. Compliance with the Wilderness Management Plan for Lake Mead NRA requires this evaluation of work to be conducted within wilderness areas.

Five sites were monitored in late March 2006 during the early breeding season. These monitoring sessions conform to USFWS's "Post De-listing Monitoring Plan," which uses the Arizona Game and Fish Department (AGFD) survey protocol. This protocol calls for a four-hour passive observation periods and was referenced in the final peregrine falcon report with the recommendation of implementing the protocol on a limited basis within the park. Application of this monitoring protocol requires a significantly longer amount of time to complete than the park's previous method (i.e., using pigeons to elicit a response). As a long-term monitoring strategy, the new approach will require tight cooperation and coordination between monitoring efforts conducted by the two state agencies (AGFD and Nevada Department of Wildlife) and the NPS. Ongoing discussions are underway in order to coordinate the monitoring efforts of the three agencies and determine the specific protocol to be used this year (Ross Haley is representing NPS). The USFWS has selected a subset of known sites across the country for a long-term monitoring effort that will target the designated sites every three years through the year 2015 and will determine nest success and productivity. Sites are currently being chosen, and likely up to 12 of them will be located within Lake Mead NRA.

Bird Monitoring

A. Shorebird Monitoring

Currently, reporting channels aren't established with this Conservation Initiative on shorebird monitoring. The data is being shared with the Great Basin Bird Observatory and the Nevada chapter of Partners in Flight. The data is being collected for the Lake Mead NRA use and the above mentioned partners, and is to be used when considering any future shoreline development plans and for long-term analysis.

Aquatic bird surveys occur monthly at designated areas of significant aquatic bird presence on Lakes Mead and Mojave. Presently, there are 4 sites on Lake Mead and 3 sites on Lake Mohave; counts are made at other locations as time allows and as bird presence is better understood. Surveys involve traveling the shoreline by boat and counting and identifying all aquatic birds and raptors encountered within the designated area. Environmental conditions and lake levels are recorded, as are counts of individual birds, maturity stage, behavior, and habitat utilization. A PLI research assistant has the lead on these efforts.

During this quarter all previously collected data were entered into a database called the LMNRA Aquatic Bird Count, which was created in November 2005. In January 2006, PLI staff met with Elisabeth Ammon, Great Basin Bird Observatory (GBBO), to coordinate survey efforts and streamline GBBO and the NPS databases. Beginning in the last two weeks of March 2006, increased surveying effort were begun in order to survey each site every two weeks. This is to coincide with the spring shorebird migration period and to gather more precise information as the birds pass northwards through Lake Mead NRA. This quarter, 22 surveys were conducted (Table 3).

**Table 3. Survey sites and numbers of surveys conducted for shorebirds within Lake Mead NRA since March 2004.**

Site	Previous Totals Mar. 2004 – Dec. 2005	Current Quarter Jan. – Mar. 2006
Lake Mead		
Las Vegas Bay	23	3
Muddy River	20	3
Virgin River	20	3
Grand Wash	9	3
Bonelli Bay	8	2
Misc. sites	4	0
Lake Mohave		
Arizona Bay	20	3
Nevada Bay	20	3
Willow Beach	18	2
Misc. sites	2	0
Totals	144	22

B. Southwestern Willow Flycatcher Surveys

The southwestern willow flycatcher was identified by the Nevada Coordinated Bird Monitoring Plan as species that warrants management action. The Clark County MSHCP identified southwestern willow flycatcher as a covered species. Surveys for the southwestern willow flycatcher are conducted from May 15 through July 10 in accordance with USFWS protocol.

Each site is visited three times during the breeding cycle, during which time the surveyors use a call-response survey technique. Sites are selected for surveying by the presence of potential southwestern willow flycatcher habitat.

During this quarter, a final report was completed by PLI staff on southwestern willow flycatcher monitoring during 2004 and 2005 as part of an MSHCP funded deliverable (project number 2003-NPS-229-P-2004). The information was included as part of the report submitted to the NPS, and eventually to the MSHCP, on bird monitoring titled "Report on Riparian, Lowland, and Upland Bird Monitoring (2004-2005), Including Southwest Willow Flycatcher, within Lake Mead National Recreation Area."

The PLI research assistant leading this effort (Joe Barnes) attended the Lower Colorado River Multiple Species Conservation Plan Terrestrial Biology meeting, hosted by the Bureau of Reclamation (BOR). At this meeting survey efforts for southwestern willow flycatchers were summarized and coordinated with participating agencies and organizations (NPS, BOR, AGFD, USFWS, SNWA, and GBBO). Personal communications were established with wildlife biologists Joe Kahl and Chris Dodge of the BOR in order to coordinate surveying efforts for the upcoming 2006 field season.

#### C. Bald Eagle Monitoring

Since 1988 the NPS at Lake Mead NRA has participated in an annual bald eagle survey as part of a national effort to assess the status of this species. Data collected at the park have been submitted to AGFD (the lead agency on the regional effort), and NDOW. During 2004 and 2005, this effort was funded under the MSHCP project (project no. 2003-NPS-229-P-2004) and the monitoring effort has been proposed for continued funding (2005-NPS-540-P).

This quarter, PLI staff wrote the final report for the 2004-2005 surveys. This report contained summary data compiled and quality-assured back to 1991. The draft report was provided to NPS for submission to the MSHCP as part of the overall project deliverables. PLI staff also compiled data from 1988 to the present and in correspondence with Karen Steenhof, the National Coordinator for the Midwinter Eagle Survey, these data were provided to her for trend analysis.

This quarter, PLI employees also organized and assisted in the annual midwinter eagle survey which took place on January 5, 2006 (a deliverable on the current MSHCP proposal). Approximately 40 observers, "volunteers" from resource management (including both NPS and UNLV employees) and the ranger divisions, were divided into 8 boat crews to cover survey routes spanning all of Lakes Mead and Mojave. In order to minimize over-count, survey routes were planned for the same day; however, mechanical problems with one of the boats resulted in only part of the Cottonwood route being surveyed on January 5, with the remaining portion completed on the following day.

#### D. Songbird Monitoring

Resource management at Lake Mead NRA has been involved with several inventory and monitoring efforts for songbirds. Since 2004, these efforts have included assisting the Great Basin Bird Observatory with a county and statewide efforts aimed at obtaining an accurate estimate of the population and distribution of Nevada Bird Species. In order to obtain statewide coverage, point-count surveys needed to be performed across the state, and several agencies including the NPS are assisting the GBBO. During 2004 and 2005, these songbird efforts were part of the MSHCP funded project (project no. 2003-NPS-229-P-2004-07) for wildlife inventory and monitoring in the Lake Mead NRA.



This quarter, PLI staff completed the final report on inventory and monitoring efforts for riparian, lowland, and upland bird species, which was a deliverable under the MSHCP project. The research assistant leading this project has also been collaborating with Elisabeth Ammon of GBBO to determine the number, type, and locations of point-count surveys that PLI staff will be performing throughout Lake Mead NRA for the upcoming breeding season in order to assist with the county-wide and statewide efforts.

E. Historical & Current Assessment of Six Covered and Three Evaluation Songbird Species  
As part of a new effort proposed for funding by the MSHCP (proposal no. 2005-NPS-542-P), a PLI research assistant (Dawn Fletcher) has been conducting inventory and historic analyses of nine covered/evaluation bird species in Clark County. These efforts will allow historic population distribution and abundance to be compared to present-day patterns. The proposed project is organized to provide data that are compatible with the GBBO proposal to develop habitat models and monitoring techniques for the same nine species. The two proposed research projects were designed to be complementary and provide unique information on these species.

Three of the species – Le Conte’s Thrasher (*Toxostoma lecontei*), Bendire’s Thrasher (*Toxostoma bendirei*), and the Gray Vireo (*Vireo huttoni*) – are difficult to detect using the standard point-count survey method typically employed by the GBBO. For this reason, PLI researchers are performing call-broadcast surveys that specifically target these species and, at the same time, are performing more standard point-counts that providing data compatible to the GBBO and others for integration into larger scale bird monitoring efforts taking place in Clark County and across Nevada.

Throughout the past quarter, the PLI lead on this project has been in communications with UNLV faculty in order to address recommendations made by the MSHCP Adaptive Management Science Teams during a review of the project proposal. Although not currently funded by the MSHCP, efforts aimed at meeting milestones described in the proposed project have been undertaken. Current efforts continue to focus on finding and reviewing any available published data on the historical distribution of these species for comparisons of distributional change and on further refinements in the selection of stratified random points for surveys. This quarter, major field efforts were also undertaken and approximately 84 points were surveyed across Clark County in order to collect presence/absence data for the target species.

Submitted by:

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Margaret N. Rees, Project Administrator

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March 31, 2006  
Date