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QUARTERLY PROGRESS REPORT
University of Nevada, Las Vegas
Period Ending June 30, 2006

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

Executive Summary

- Tortoise and tortoise habitat monitoring was conducted on the Northshore Road construction project, on the Southern Nevada Water Authority intake pipe project, the Frontier Telephone-Willow Beach project and the movie film at Temple Bar.
- A total of 25 tortoise education classes were given to 90 individuals.
- Evaluation of 3 potential sites for relict leopard frog translocations conducted but sites were not recommended.
- Head-starting and translocation efforts for relict leopard frogs continued. 1183 animals translocated so far this year.
- Relict Leopard Frog Conservation Team meeting held and yearly report completed.
- Continuation of data management and QA of GPS collar information from bighorn sheep to assess impacts of highway construction.
- Peregrine Falcon surveys mostly completed; all previous sites evaluated and two new territories identified.
- Shorebird surveys conducted twice per month during this quarter at 7 sites to monitor spring migration on Lakes Mead and Mojave.
- Point count surveys to monitor songbird species conducted at 24 sites, plus call broadcast surveys for southwest willow flycatchers conducted at 4 sites on Lake Mojave.
- Approximately 140 surveys for thrasher species completed county-wide as part of a research effort on these elusive birds.
- Coordination and consultations conducted to begin preliminary analysis and modeling of thrasher habitat selection.

Program Activities

The task agreement was awarded to the University of Nevada, Las Vegas (UNLV) on October 1, 2005. Research, monitoring, and management activities are conducted primarily by UNLV Public Lands Institute (PLI) employees. During the past quarter, ending June 30, 2006, the following activities have occurred toward meeting deliverables in the statement of work.
Hiring

The university has initiated an employment search to replace UNLV-PLI research assistant Cristina Velez, who has been working on relict leopard frog monitoring and management. The search committee is chaired by Dr. Jef Jaeger, with NPS representation from Mr. Ross Haley. The university plans to have a new employee in place prior to Ms. Velez’s departure in September 2006.

Desert Tortoise Mitigation and Monitoring

This section summarizes biological monitoring and mitigation activities (compliance monitoring) conducted by PLI staff for desert tortoise and desert tortoise habitats associated with various construction and right-of-way activities within Lake Mead National Recreation Area (LMNRA).

A. Areas Surveyed for Desert Tortoise Related to Construction Project

A PLI research assistant spent 51 days overseeing tortoise monitoring activities on the Northshore Road construction project, the Southern Nevada Water Authority (SNWA) intake pipe project, the Frontier Telephone-Willow Beach project and the movie film crew at Temple Bar. There were no tortoises observed during any of this monitoring, but 7 snakes, 3 horned lizards, and a horse were relocated from areas of the Northshore Road project.

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

Two days were spent on monitoring topsoil removal, and 6 partial days were spent on topsoil replacement on the Northshore Road project. Three partial days were spent flagging the threatened Bear Paw Poppy, and one partial day was spent supervising erection of silt fence on the Northshore Road project. In addition, 42 heavy equipment/vehicle inspections were conducted to search for bits of soil that could be bringing in non-native seeds (32 inspections on Northshore Road project, 6 on the SNWA project, and 4 on the Frontier Telephone project).

C. Desert Tortoise Training Provided to Contractors

A total of 25 tortoise education classes were given to 90 individuals during this quarter. Broken down by project, these include: 13 classes given to 69 new workers on the Northshore Road project; 10 classes given to 14 new workers on the SNWA project; one class given to 6 workers with Frontier Telephone project; and one class given to one person with the movie film crew at Temple Bar.

Desert Tortoise Habitat

No specific research on long-term monitoring of desert tortoise populations or habitat occurred this quarter.

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 staff primarily provide
technical assistant for data quality assurance and management as well as field support in finding dead animals and identifying the causes of death.

This quarter, approximately 12 weeks of data were processed. Data received were uploaded into the program Argos Data Converter T03 (Telonics, Inc.) and then exported to an Excel spreadsheet and converted into a useable 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. In addition, collars were retrieved from two dead animals and a general assessment of the carcasses was conducted in order to determine causes of death.

**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 LMNRA.

During this quarter, night-time visual encounter surveys were conducted at all natural and experimental frog sites (11 sites total). The main finding of concern from these surveys was that no frogs were observed at Rogers Spring (a natural site). This site has always returned very low numbers during surveys; nevertheless, a follow-up survey is scheduled for June 28, 2006, and the site is targeted for expanded monitoring and management efforts beginning this fall. A night-time visual encounter survey was also conducted at Tassi Spring (a site identified for translocation) to evaluate unsubstantiated sightings of bullfrogs, but none was encountered. Three additional potential sites were evaluated for translocations (Burro Spring - Spring Canyon, Cottonwood Spring, and Salt Spring) but none of these sites appeared promising for various reasons.

The spring and early summer periods are the most intense for head-stating and translocation efforts. Both the NPS facility at Hill Top and the USFWS facility at Willow Beach were active during this quarter raising animals from egg masses collecting last January; activities at Willow Beach, however, were minor. Tables 1 and 2 provide summaries of the current animals housed in the head-stating facilities and the number of animals released by translation site.

In addition to the monitoring and management actions described above, PLI personnel with assistance from NPS GIS specialists completed habitat maps for Rogers and Blue Point Springs during this quarter. These maps were created to assist with future survey efforts and will be submitted to the Clark County MSHCP (delivery anticipated before the end of this quarter).
Table 1. Animals currently within head-starting facilities.

<table>
<thead>
<tr>
<th>Facility</th>
<th>Animal Stage</th>
<th>Number in Facility and Date Collected</th>
</tr>
</thead>
<tbody>
<tr>
<td>NPS</td>
<td>Tadpoles:</td>
<td>~120 (from egg masses collected in January 2006)</td>
</tr>
<tr>
<td></td>
<td>Metamorphs/froglets</td>
<td>~110 (from egg masses collected in January 2006)</td>
</tr>
<tr>
<td></td>
<td>Frogs</td>
<td>1 adult female (collected as an egg in February 2003)</td>
</tr>
<tr>
<td>USFWS</td>
<td>Metamorphs/froglets</td>
<td>10 (from egg masses collected in January 2006)</td>
</tr>
</tbody>
</table>

Table 2. Summary of current translocation efforts by site.

<table>
<thead>
<tr>
<th>Site Name</th>
<th>Animals Release in 2006</th>
<th>Total Animals Released</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pupfish Refuge Spring, NV</td>
<td>14 frogs</td>
<td>420 since 2003</td>
</tr>
<tr>
<td>Sugarloaf Spring, AZ</td>
<td>None</td>
<td>372 total since 2003</td>
</tr>
<tr>
<td>Grapevine Spring, AZ</td>
<td>660 tadpoles</td>
<td>2,195 total since 2004</td>
</tr>
<tr>
<td>Goldstrike Canyon, NV</td>
<td>475 tadpoles</td>
<td>1,687 total since 2004</td>
</tr>
<tr>
<td>Red Rock Spring, NV</td>
<td>34 frogs</td>
<td>233 frogs total since 2005</td>
</tr>
</tbody>
</table>

PLI personnel provided secretarial assistance to the Relict Leopard Frog Conservation Team (RLFCT) and attended the RLFCT meeting on June 12, 2006. The PLI research assistant on this project presented a summary of monitoring and management actions and the PI on this task agreement presented summaries of other research actions. The 2005 yearly report for the RLFCT was compiled by the PLI research assistant and is currently under review by the team.

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 main objectives of the monitoring effort are to attain an approximate estimate of the number of territories occupied by this species, to evaluate population trends, and to assess reproductive success within the LMNRA. Survey protocols are coordinated with cooperating agencies (NDOW, AGFD, and USFWS) and conform to the “Monitoring Plan for the American Peregrine Falcon, a species recovered under the Endangered Species Act.” A PLI research assistant has the lead role in coordinating and conducting the monitoring and evaluation efforts.

The USFWS selected 12 of 15 previously identified peregrine territories within LMNRA for monitoring under the agency’s post de-listing monitoring plan. During the past 3 months, PLI personnel conducted a total of 35 passive monitoring sessions on 9 of these 12 selected sites. All surveys conform to a four-hour passive monitoring protocol designed to determine occupancy status, nest success, and productivity. An NDOW wildlife biologist was responsible for monitoring the other three sites, and to date the NDOW biologist has confirmed occupancy and attempted breeding at each site. Fifteen additional passive surveys were conducted by PLI personnel to monitor sites that were not selected by USFWS but that were of interest in determining population trends within LMNRA.

To date (June 22), all 16 known sites within LMNRA were found to be occupied, 11 sites had confirmed breeding activity, and 3 sites were documented to have successfully fledged young. Seven potential sites were surveyed using a combination of the passive and active methods mentioned above, resulting in the identification of 2 newly identified peregrine territories and a
single prairie falcon territory within LMNRA. Two sightings of falcons in the Newberry Mountains in 2005 were followed up this year with a total of five monitoring sessions, but no additional breeding territories were detected. Three adult peregrines were detected while conducting point counts for songbird monitoring this breeding season.

Prior to the end of June 2006, six additional lake-wide surveys will have been completed. These surveys use pigeons to elicit a response from the peregrines to bolster the passive monitoring sessions and to more efficiently search for and identify new potential territories.

Also during this quarter, an ongoing literature review of peregrine natural history, behavior, breeding success, and habitat use was conducted with a particular emphasis on gathering information on developing a predictive habitat map for peregrine falcons within LMNRA.

**Bird Monitoring**

A. **Shorebird Monitoring**

Aquatic bird surveys occur at least monthly at designated areas of significant aquatic bird presence on Lakes Mead and Mojave. A PLI research assistant has the lead on these efforts. Presently, there are 4 consistently monitored sites on Lake Mead and 3 sites on Lake Mohave; counts are made at other locations as time allows and as bird presence changes in relationship to lake levels. Surveys involve traveling the shoreline by boat and counting and identifying all aquatic birds and raptors encountered within the designated areas. Data is being shared with the Great Basin Bird Observatory (GBBO) and the Nevada chapter of Partners in Flight, and is being collected for NPS use when considering any future shoreline development plans and for long-term analysis.

Survey efforts at sites were increased to twice per month starting the last two weeks of March through the second week of May 2006 to coincide with the spring shorebird migration period. The intensive monitoring of sites was done to gather more precise information on species and numbers as birds pass northwards through the park. The regular schedule of one visit at each site per month was resumed in June 2006 and will be continued throughout the rest of the year. Data for these surveys have been sent to the Great Basin Bird Observatory (GBBO) and entered into the LMNRA Aquatic Bird Count Database. This quarter, 27 surveys were conducted and are summarized in the table below. In addition, PLI research assistants cooperated with NPS staff to conduct bacteria sampling at various sites on Lakes Mead and Mohave as a component of the Water 2025 Initiative.

**Table 1. Survey sites and numbers of surveys conducted for shorebirds within LMNRA, March 2004-June 2006.**

<table>
<thead>
<tr>
<th>Site</th>
<th>Previous Totals</th>
<th>Current Quarter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lake Mead</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Las Vegas Bay</td>
<td>26</td>
<td>4</td>
</tr>
<tr>
<td>Muddy River</td>
<td>23</td>
<td>4</td>
</tr>
<tr>
<td>Virgin River</td>
<td>23</td>
<td>4</td>
</tr>
<tr>
<td>Grand Wash</td>
<td>12</td>
<td>4</td>
</tr>
<tr>
<td>Bonelli Bay</td>
<td>10</td>
<td>0</td>
</tr>
</tbody>
</table>
### Table: Survey Sites

<table>
<thead>
<tr>
<th>Site</th>
<th>Visits</th>
<th>Confirmed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Misc. sites</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Lake Mohave</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arizona Bay</td>
<td>23</td>
<td>4</td>
</tr>
<tr>
<td>Nevada Bay</td>
<td>23</td>
<td>4</td>
</tr>
<tr>
<td>Willow Beach</td>
<td>20</td>
<td>3</td>
</tr>
<tr>
<td>Misc. sites</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>166</strong></td>
<td><strong>27</strong></td>
</tr>
</tbody>
</table>

#### B. Southwestern Willow Flycatcher Surveys

The southwestern willow flycatcher was identified by the Nevada Coordinated Bird Monitoring Plan as a species that warrants management action and is identified in regional conservation plans. 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.

Surveys were coordinated by PLI personnel last quarter with biologists associated with the Bureau of Reclamation (BOR), the lead agency coordinating willow flycatcher surveys on the river. Four call-broadcast surveys were conducted by PLI personnel in May and June 2006 at two sites on Lake Mohave. A pair of willow flycatchers was detected at the Waterwheel Cove site along with two silent flycatchers that were not confirmed to species. Willow flycatchers were not detected on the other surveys. The year’s field work will be complete in the first half of July 2006.

#### C. Bald Eagle Monitoring

Since 1988, LMNRA has participated in an annual bald eagle count as part of a national effort to assess the status of this species. Counts are conducted in early January. This quarter, no efforts were conducted by PLI staff on bald eagles other than the refinement of future deliverables associated with this effort.

#### D. Songbird Monitoring

Resource management at LMNRA has been involved with several inventory and monitoring efforts for songbirds. Since 2004, these efforts have included assisting the GBBO with county and statewide efforts aimed at obtaining an accurate estimate of the population and distribution of Nevada Bird Species.

This quarter, PLI staff conducted 19 point count surveys as part of this state-wide effort. Eight of these surveys were performed within LMNRA and the remainder on BLM lands. These surveys were performed within the following habitat types: 8 in riparian, 2 in mesquite-catclaw, 8 in Mojave scrub, and 1 in salt desert. In addition, the approximately 140 surveys conducted for research on thrashers (see below) consist of initial point-count surveys which can be compatible with assessments using data from the standard protocol.

#### E. Historical & Current Assessment of Six Covered and Three Evaluation Songbird Species

The current focus of this project is on county-wide surveys for three species of thrasher – Le Conte’s Thrasher (*Toxostoma lecontei*), Bendire’s Thrasher (*Toxostoma bendirei*), and Crissal
Thrasher (Toxostoma crissale). These birds are difficult to detect using the standard point-count survey method typically employed by the GBBO for state-wide bird survey efforts. 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. The purpose is to develop an understanding of the distribution of these species across Clark County and to develop models of the factors that govern this distribution. From these data, a habitat suitability map will be developed and evaluated for historical changes.

During this past quarter, PLI personnel have conducted surveys at approximately 140 points county-wide. In addition, the lead research assistant on this project has been in correspondence with Dr. Elizabeth Ammon (GBBO science director), in order to coordinate efforts across projects. Coordination meetings were also conducted with the lead PI on this task agreement, GIS specialists from LMNRA, and a UNLV bio-statistician in order to begin preliminary data analysis and to assist with the development of vegetation survey protocol necessary for the analysis. Ongoing literature reviews were performed.

**Other Efforts**

A. **Meetings Attended by PLI staff:**


Resource Management Staff Meeting, May 1, 2006, Resource Management Building, Boulder City, NV. Attended by Joe Barnes, Dawn Fletcher, Cristina Velez, and Jef Jaeger.


Relict Leopard Frog Conservation Team (RLFCT) Meeting, June 12, 2006, LMNRA Headquarters, Boulder City, NV. Attended by Cristina Velez and Jef Jaeger.

B. **Presentations coauthored by PLI staff:**

Hutcheson, J., D. Fletcher, M. Sappington. Modeling Habitat for Le Conte’s Thrasher in Clark County, Nevada, increasing our knowledge and increasing conservation measures for a bird which is secretive, uncommon, and little understood. Poster given at Nevada GIS Conference, April 19, 2006, Las Vegas, NV.

Submitted by:

______________________________  June 30, 2006
Margaret N. Rees, Project Administrator  Date