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March 29, 2007

TO:  Ross Haley, Wildlife Biologist
     National Park Service – Agreement Technical Representative

FROM:  Dr. Margaret N. Rees
        Executive Director, Public Lands Institute

RE:  April 1, 2007 Quarterly Report:
      Task Agreement #J8R07060012

Enclosed please find the latest quarterly report for the project titled:

- “Monitoring and Evaluation of Sensitive Wildlife at Lake Mead National Recreation
  Area”

The enclosed report reflects activities for the period January 1 - April 1, 2007.

If you have any questions after reviewing this report, please do not hesitate to call me at
(702) 895-3890.

MNR:sa

Enclosures (1)

Cc:  Tami Lucero, SNAP Partnership Specialist
     Electronic cc:  Dr. Angela Evenden, NPS CESU Research Coordinator
                        Kent Turner, National Park Service
                        Dr. Jef Jaeger, NPS Program Administrator
Executive Summary

Project 1. Relict Leopard Frog Monitoring, Management, and Research
- Spring-time diurnal surveys for relict leopard frogs were conducted at all sites.
- Relict leopard frog annual translocation effort was initiated. Currently, 2,153 tadpoles are being reared at the Hill Top and Willow Beach Fish Hatchery facilities. Quagga mussels found at the hatchery might not be as problematic for this program as originally thought. Current prophylactic protocols for disease treatment in tadpoles and frogs are being evaluated for their ability to kill quagga mussel larvae.
- Coordination and monitoring was provided to EPMT crews conducting tamarisk control at relict leopard frog sites in Black Canyon.
- Coordination and assistance was provided to UNLV research efforts on habitat improvements for relict leopard frogs at Blue Point and Rogers Springs.

Project 2. Bald Eagle Winter Monitoring and Evaluation
- Bald eagle count was completed using new protocols developed last quarter. Totals were: 87 bald eagles (30 adults and 57 immature), one immature golden eagle, and four unidentified eagles.
- A draft annual report was written, submitted to NPS, and is currently under NPS review.

Project 3. Peregrine Falcon Monitoring and Evaluation
- Peregrine falcon spring monitoring activities began early. A total of 30 passive surveys were completed; all known territories have been visited. Eight exploratory surveys were also conducted. One new territory along the shores of southern Lake Mojave was identified.

Project 4. Assessment of Six Covered and Three Evaluation Bird Species
- Research status meeting was held; thrasher study focus will shift from field surveys to generating habitat variable data for preliminary analysis and modeling.

Project 5. Desert Tortoise Monitoring and Management
- Population surveys for desert tortoises are not likely to be conducted this spring, discussions on project status to follow this quarter.
- Desert tortoise and desert tortoise habitat compliance monitoring was continued.

Project 6. Shorebird Monitoring on Lakes Mead and Mohave
- Monthly surveys were conducted on seven intensive monitored sites on Lakes Mead and Mojave throughout the past quarter with a total of 25 surveys completed.
Project 7. Desert Bighorn Sheep Habitat Use Monitoring in Relation to Highway Development

- Data management and QA of GPS collar information from bighorn sheep with 285 point locations processed on 11 radio collars were continued.
- Data assessments and analyses of bighorn sheep movements were provided to NPS for presentation.

Other Activities

- UNLV undergraduate intern was hired to assist part-time with research efforts.
- Two professional presentations by individuals associated with this task agreement were given.
- Two public presentations that include information associated with this task agreement were given.

Program Activities

The task agreement was awarded to the University of Nevada, Las Vegas (UNLV) on October 1, 2006. Research, monitoring, and management activities are conducted primarily by UNLV Public Lands Institute (PLI) employees. During the quarter ending March 31, 2007 the following activities have occurred toward meeting deliverables in the statement of work. Note that the wording for the deliverable statements below (italicized font) has been abbreviated from that within the task agreement.

Hiring and Student Opportunities

Starting in January 2007, PLI hired a UNLV undergraduate student intern, Mr. CJ Calvo, to assist part-time with wildlife research and monitoring efforts, particularly with relict leopard frog conservation and research. CJ joins our high school student intern, Mr. Dane Gerace, who continued with his efforts this quarter (started in late December).

Project 1. Relict Leopard Frog Monitoring, Management and Research

Phases I and II

1. Experimental translocation program for the Relict Leopard Frogs – Seven egg masses have been collected from Bighorn Sheep Spring since February 2007. Rearing of the resulting 2,153 tadpoles is currently being coordinated at the USFWS fish hatchery at Willow Beach, Lake Mojave and at the Lake Mead NRA laboratory head-start facility (Table 1).

Table 1. Egg mass collection data for Relict Leopard Frog translocation program during 2007.

<table>
<thead>
<tr>
<th>Collection Date</th>
<th>Collection Site</th>
<th>Egg Masses Collected (n)</th>
<th>Tadpoles Hatched (n)</th>
<th>Rearing Facility</th>
</tr>
</thead>
<tbody>
<tr>
<td>06 Feb 07</td>
<td>Bighorn Sheep Spring</td>
<td>1</td>
<td>520</td>
<td>USFWS Hatchery</td>
</tr>
<tr>
<td>20 Feb 07</td>
<td>Bighorn Sheep Spring</td>
<td>2</td>
<td>575</td>
<td>USFWS Hatchery</td>
</tr>
<tr>
<td>10 Mar 07</td>
<td>Bighorn Sheep Spring</td>
<td>4</td>
<td>1058</td>
<td>Lake Mead facility</td>
</tr>
</tbody>
</table>

Quagga mussels have been found at the fish hatchery that has raised concerns regarding tadpole rearing at this site. Concerns with transferring quagga larvae with tadpoles or frog releases are probably less of a threat than initially thought. The tadpole runways at the site are filled with
isolated well water and river water. Current prophylactic protocols for treatments against disease that are applied to tadpoles and frogs are likely sufficient to kill quagga larvae but we are still evaluating these protocols. We are planning on limiting the number of tadpoles reared at this site and will limit the locations where these tadpoles will be released this year. All equipment used at this site will be isolated from use at other sites or facilities. Written protocols are being developed.

2. Potential sites for translocations – Following discussions at the last Relict Leopard Frog Conservation Team meeting, Project Manager Dr. Jef Jaeger and Ms. Drake (PLI research assistant) met with Mr. Marc Maynard, BLM biologist and member of the Relict Leopard Frog Conservation Team, on February 27, 2007 to discuss potential translocation sites for this year. Reconnaissance visits to several potential springs within the Gold Butte area are scheduled by this group during the last week of March.

3. Monitoring surveys of all translocation sites will be conducted at least twice per year – During this quarter, diurnal visual encounter surveys (VES) were conducted at all but one of the existing experimental site (six sites total); the exception was Sugarloaf Spring which has been removed from the list of active translocation sites due to a failure to observe frogs in autumn. Frogs were seen at four of the six sites, while larvae (tadpoles) and egg masses were seen at only two sites. Additional surveys are likely to continue for some sites into April.

Multiple surveys were conducted this year at some of the translocation sites to improve our understanding of time of breeding for relict leopard frogs as well as to collect data on oviposition sites for this species. Access to the Pupfish Refuge was restricted through the end of February because of construction on the access road. The road modification included the addition of grated culverts, channelizing of the roadside ditch, and elimination of large roadside pools which the frogs used as larval development habitat.

4. Monitoring surveys of all natural sites will be conducted at least twice per year – During this quarter, diurnal visual encounter surveys (VES) were conducted at all natural relict leopard frog sites and one previously inaccessible site (seven sites total). As described for the translocation sites, multiple surveys were conducted at sites to improve our understanding timing of breeding and to collect data on oviposition sites. Frogs were observed at four of the seven sites. Tadpoles were observed at all of the Black Canyon sites but not at the Northshore sites. Egg masses were observed at three of the seven sites, none of them at the Northshore sites. Additional surveys are likely to continue at some sites into April.

5. Small-scale habitat management – No small-scale habitat management was conducted during this quarter.

6. Exotic vegetation control activities by collaborators – PLI personnel conducted site reconnaissance with leaders of the NPS Exotic Plant Management Team (EPMT) at three Black Canyon sites (Bighorn Sheep Spring, Salt Cedar Spring, and Black Canyon Spring) on January 17, 2007. PLI personnel accompanied the full EPMT crew into the Black Canyon sites on February 6, 2007 to instruct crew members in frog, egg, and tadpole identification and to mark pools inhabited by frogs, tadpoles, and egg masses to be avoided during plant removal.

7. Coordinate semi-annual meetings of the Relict Leopard Frog Conservation Team (RLFCT) and insure the development of RLFCT annual work plans and annual reports – A meeting of the RLFCT is planned for April 18, 2007 at Lake Mead NRA Headquarters. Ms. Drake is assisting
Mr. Haley (NPS ATR) with the organization of this meeting as well as working with RLFCT members to complete and finalize the 2006 final report.

8. Assist with scheduled habitat research projects at Blue Point and Rogers Springs – Ms. Drake assisted Dr. Jaeger, UNLV graduate and undergraduate students, and colleagues from PLI, NDOW, and NPS in conducting habitat manipulation experiments to improve conditions for relict leopard frogs at Blue Point and Rogers Springs in February 2007. These activities included assisting with over-site of Nevada Conservation Corps and American Conservation Experience crews assisting on the project.

Phase I

1. Mark-recapture study of the frog population at Rogers Spring – This project is scheduled to correspond with warming temperatures in late March and early April. The initial capture effort was to begin on March 20, but a localized thunder storm caused cancellation of the effort while at the site. Capture efforts are scheduled again for the last weeks of this quarter.

Other work – Ms. Drake, Dr. Jaeger, and Mr. Haley provided a site visit for Clark County MSHCP Mangers and organized a coordination meeting regarding implementation of the relict leopard frog conservation project (March, 1 2007; Lake Mead NRA Headquarters, Boulder City, NV)

Project 2. Bald Eagle Winter Monitoring and Evaluation

Phase I

1. Protocols and a written manual will be developed to improve quality control of data collected – This deliverable was completed last quarter when the 2007 guideline and field count protocols (essentially, standard operating procedures) were developed for the annual midwinter bald eagle count on Lakes Mead and Mohave. The 2007 document will be reviewed and updated prior to the count in 2008, incorporating insights gained from the implementation of these protocols during the count this quarter.


2. An annual report will be prepared by September 30. 2007 – During this quarter, a draft annual report summarizing the 2007 midwinter bald eagle count was written. This document was submitted to Mr. Haley (ATR NPS) on 2-16-2007, and is currently undergoing review.

Phase I and II

1. Yearly winter counts of bald eagles on Lakes Mead and Mojave coordinated and conducted –

This quarter the annual bald eagle count was performed on Lakes Mead and Mojave. The count methodology was modified this year from previous years in an effort to improve accuracy of the count as detailed in the standard operating protocol (SOP), which was provided to each crew member participating in this year’s count (see citation above). The 2007 count followed the guidelines set forth by the SOP by (1) assigning trained Lead Observers and Data Recorders to each survey route; (2) tracking individual survey routes using GPS units; (3) utilizing the newly improved eagle identification guides, data sheets, and standard route maps; (4) keeping all boat operators within the maximum boat speed of 15mph while performing the surveys; and (5) following adjustments made to two of the survey routes, Overton and Boulder Canyon, to allow for more even coverage by crews. In addition, as described in the SOP and draft final report, multiple surveys of the Overton route were performed in an effort to evaluate variation in numbers of eagles counted during the sampling period and to help discern fluctuations in arrival and departure dates of bald eagles.

The total official count for 2007 was 87 bald eagles, (30 adults and 57 immature), 1 immature golden eagle, and 4 unidentified eagles. Total usable survey effort toward the official count was 65 hours. Inclement weather required a substantial increase in effort and time to successfully complete all surveys this year. Because some survey attempts had to be aborted or were considered inadequate due to poor conditions, actual time spent was 96.4 hours.

All the data collected during the count were entered into a geodatabase in ArcGIS by the count coordinator. To ensure that the data was entered completely and correctly (quality assurance), a member of the Lake Mead NRA data management team reexamined the data and database for discrepancies prior to final acceptance.

Project 3. Peregrine Falcon Monitoring and Evaluation

Phase I.

1. Yearly monitoring activities – The spring 2007 monitoring activities were begun this quarter. A newly documented peregrine territory on southern Lake Mohave was identified after following up on an incidental peregrine sighting recorded during the Midwinter Bald Eagle Count. Passive monitoring sessions were conducted at the new site as well as at two historical Black Canyon sites in January and early February to evaluate winter site fidelity and establish the onset of courtship activities by resident adults. These surveys provided positive results, thus research assistant, Mr. Barnes, initiated more structured breeding season monitoring at an earlier date than was done in 2006 (mid-February instead of mid-March). These efforts reflect a better understanding of the timing of the local peregrine breeding cycle and are designed to take advantage of the courtship phase during which these birds are more active and vocal. As of the end of this quarter, all known peregrine territories will have been visited for a total of 30 passive surveys. Additionally, eight passive surveys have been conducted in previously undocumented areas.

Mr. Barnes has been in contact with Ms. Christina Klinger (Wildlife Diversity Bureau, NDOW) and Mr. Dennis Abbate (Arizona Fish and Game) to discuss and coordinate the 2007 field season objectives.
2. Evaluation of survey protocols – Active survey protocols are planned for April. As in years past, the active surveys will be conducted once a month (April-June) at most sites that are accessible by water, and will utilize methods to actively elicit a response by resident peregrines to facilitate observations. Active surveys will also be conducted on an exploratory basis at sites not previously documented as containing resident peregrines. Results from the active survey protocol will be evaluated against the passive method to determine the efficacy of the competing methods.

Phase II.

1. Conceptual model and predictive GIS-based habitat map – Mr. Barnes continued a literature search and review of peregrine falcon natural history, behavior, breeding success, and habitat use to develop a conceptual model and predictive habitat model (these deliverables are due during the second year of this task agreement). To date, four raptor reference books, 36 peer reviewed journal articles, and 13 conference papers have been reviewed. The ongoing literature review is reflected in the development of an electronic database of literature on the subject, as well as a database containing a summary of all sources for future reference. Mr. Barnes has been coordinating with Lake Mead NRA GIS/Data Management personnel (Mr. Sappington and Stacey Provencal, an employee of UNLV’s Harry Reid Center, working at Lake Mead NRA) in preliminary efforts to develop a predictive GIS-based habitat map for peregrines within Lake Mead NRA. Discussions are underway to potentially field test an initial model developed by Ms. Provencal and to schedule meetings during the coming quarter to evaluate the next steps in model construction.

Project 4. Assessment of Six Covered and Three Evaluation Bird Species

Phase I and II

1. Annual point count surveys as part of regional bird survey efforts – Last quarter, PLI personnel finished entering field data into a database from point-count surveys conducted in previous quarters; this quarter these data underwent quality assurance and were subsequently shared with the Great Basin Bird Observatory (GBBO) for incorporation into the statewide database. Point-count surveys for 2007 are scheduled to occur next quarter.

2. Annual surveys for southwestern willow flycatchers – No efforts were conducted to survey for potential southwestern willow flycatcher populations during this quarter. Southwestern willow flycatcher surveys are scheduled to be conducted during the breeding period of May 15 through July 10, in accordance with USFW protocol.

3. Research to develop habitat assessments and predictive models for cryptic thrasher species – Two important meetings were conducted this quarter to assess project status and direction. The first involved key project-related NPS and PLI staff (Ms. Fletcher, Dr. Jaeger, and Mr. Haley). The second, subsequent meeting included PLI personnel and UNLV advisors (notably, Drs. Klicka and Thompson). During these meetings, a consensus was reached that enough field observations had been made that it is now appropriate to conclude range-wide surveys and begin data assessment and analysis. UNLV project advisors strongly recommended that the analysis entail a logistic regression approach for creating habitat suitability models. Predictive maps could then be developed within a Geographic Information System (GIS) using the results of the logistic analysis. Additionally, the GIS-based modeling program, Maxent, could be used to develop habitat maps for comparative purposes.
Through literature reviews and expert opinions, nine habitat variables have been targeted for inclusion in preliminary models: (1) distance to nearest developed area; (2) distance to nearest road (if possible, roads might be categorized); (3) distance to nearest wash; (4) landform; (5) landcover; (6) vegetation (derived from soil layer), (7) soil, and possibly soil properties; (8) precipitation annual totals and periods of biological significance; and (9) elevation. This quarter a significant amount of time has been spent by Ms. Fletcher on this project and Lake Mead NRA GIS staff (particularly Mr. Joe Hutcheson, who is an employee of UNLV’s Harry Reid Center, working at Lake Mead NRA) to develop these datasets.

A major focus this quarter was in determining a method to represent various characteristics of a soil database to be used in creation of the habitat model and organizing the data for statistical assessment. Substantial effort has gone into creating an observational database—entering and assuring quality of site-specific data collected on weather conditions, vegetation observations, and thrasher occupancy.

Because the process of migrating GIS data into a form usable by statistical programs is time consuming, an effort is being made to prioritize the preparation of variables based on a combination of the amount of time expected to complete the process and expected influence of the variable in the analyses. For example, to produce a categorized road dataset will require significant augmentation by way of interpretation, synthesis, and data entry; consequently, this variable is of lower priority, especially since a less detailed, but more readily usable dataset already exists (i.e., distance to nearest road).

Phase I.

1. Description of conceptual models for the targeted thrasher species – The conceptual models for the targeted thrasher species were previously completed.

2. Completion of a randomized sampling design for countywide thrasher surveys – A randomized sampling design for county-wide thrasher surveys were previously completed.

3. Conducted field efforts using call broadcast surveys for targeted thrashers – PLI personnel have been performing call-broadcast surveys since February of 2005 and under a standardized approach beginning in early March that same year. This quarter 20 call-broadcast surveys for the thrasher species were preformed with two of these locations at points were thrashers were previously documented. To date 451 thrasher surveys were performed at locations across Clark County. Emphasis has been shifted this quarter from field surveys to assessment and analysis of these data (see above).

4. Vegetation assessment protocols will be developed and surveys initiated – During research meetings this quarter (see above), a consensus was reached to assess the basic vegetation observations previously collected at each site during surveys for use in the logistic regressions. The preliminary assessment will then be used to decide if further vegetation data are necessary; vegetation data are available in the soils database, but useful extraction of these data will be time consuming and may not be better than that currently collected. Further, site specific work may be attempted at a later date after the preliminary analyses are completed.
Project 5. Desert Tortoise Monitoring and Management

Phase I & II.

1. Coordinate with FWS to determine population survey methodologies, conduct population monitoring surveys, and report – This project has not yet been initiated. In communication with the Mr. Haley, tortoise population surveys will not likely be conducted this year. MSHCP funding for this effort has not yet been secured by the NPS, and a decision on whether to continue long-term monitoring plot surveys or to employ line-distance methods for population monitoring has not been made. Dr. Jaeger spoke briefly with managers the Nevada Conservation Corps (NCC) regarding the possibility of using NCC crews from organized to conduct the line-distance method for population monitoring.

Phase I

2. Compliance 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 NRA. Information presented herein is complied for December, 2006 through February 2007; March information is not available at the time of this writing but will be included in the subsequent quarterly report.

Desert Tortoise and Habitat Mitigation Measures Monitored During Construction Projects: A total of 10 days were spent in December by a PLI research assistant overseeing tortoise monitoring activities on the Northshore Road reconstruction project. An attempt was made to rescue an injured owl; the owl was eventually euthanized. One day was committed to overseeing the Pabco/Gypsum water pump project at Government Wash for assurance of minimal impact to the vegetation and soils. In January, 15 days were spent overseeing tortoise-monitoring activities on the Northshore Road reconstruction project. Three additional days on this project were spent supervising topsoil removal and stockpiling. In February, 13 days were spent overseeing tortoise-monitoring activities on the Northshore Road reconstruction project and 4 days were spent supervising the road building contractor on slope contouring, topsoil replacement, and topsoil crusting. No tortoises were observed within construction zones during these times.

Desert Tortoise Training Provided to Contractors: A total of six tortoise education classes were provided to contractors on the Northshore Road project from December through February (one class was given to a contractor in December, 2 classes were given to single workers in January, and 3 classes were given to 5 workers in February).

Project 6. Shorebird Monitoring on Lakes Mead and Mohave

Phase I and II

1. Monthly inventory and monitoring surveys – Ongoing monthly surveys were conducted on seven intensively monitored sites on Lakes Mead and Mojave throughout the quarter with a total of 25 surveys completed (Table 2). These surveys included four exploratory sites on Lake Mohave in an effort to identify other areas potentially important to aquatic birds. All data collected during these surveys were entered into the Lake Mead NRA Aquatic Bird Count Database and have been shared with the GBBO.
2. *Water Grab samples*– No water samples were requested this quarter.

**Table 2.** Survey sites and numbers of surveys conducted for shorebirds within LMNRA since March 2004.

<table>
<thead>
<tr>
<th>Site</th>
<th>Number of Surveys</th>
<th>Mar. 04 – Dec. 06</th>
<th>Jan. 07 – Mar. 07</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lake Mead</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Las Vegas Bay</td>
<td>38</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Muddy River</td>
<td>33</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Virgin River</td>
<td>33</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Grand Wash</td>
<td>20</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Bonelli Bay</td>
<td>10</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Misc. sites</td>
<td>5</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Lake Mohave</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arizona Bay</td>
<td>33</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Nevada Bay</td>
<td>33</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Willow Beach</td>
<td>29</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Misc. sites</td>
<td>10</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>253</td>
<td>25</td>
<td></td>
</tr>
</tbody>
</table>

Project 7. Desert Bighorn Sheep Habitat Use Monitoring in Relation to Highway Development.

**Phase I and II**

1. GPS location data from collars on sheep will be downloaded weekly and converted into a format recognized by *ArcGIS* – This quarter, as of March 16, 2007, 7 weeks of data consisting of approximately 285 point locations were processed on 11 radio collars currently transmitting a signal. Although, typically 12 weeks of data are received in a quarter, Argos did not send information for two weeks in January and one week in February; two weeks of March are not reported herein. All 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 or to filter out bad fixes. Data were checked to identify sheep deaths or collar malfunctions.

2. Field retrieval of collars will be attempted on all dead animals – This quarter there were no bighorn sheep deaths documented.

**Phase II**

1. Provide technical assistance for project assessments and report – This quarter, as requested by Mr. Haley, PLI personnel working with GIS staff at Lake Mead NRA (Mr. Hutcheson) provided the following information for the desert bighorn sheep project: (1) total number of fixes collected for each collar/sheep from the beginning of the study to present; (2) range of dates for which each collar has been collecting data; (3) the collar/sheep status to date; (4) the number of times each sheep/collar has crossed highway 93; and (5) the approximate home range of each animal from aerial estimates. These assessments took approximately a week worth of time from the PLI research assistant on this project. In addition, maps were created in *ArcGIS* that depicted
individual sheep home ranges. All of these tabular and illustrative products were presented by Mr. Haley at an interagency planning meeting.

In addition, an effort to help locate a particular collared sheep for Nevada Department of Wildlife (NDOW), downloaded ARGOS data was processed, screened, compiled, and incorporated into a GIS. This work was performed in an effort to assist NDOW with detection rates and reliability of an aerial survey that they performed.

Also, at the beginning of the quarter, a request was made for maps (listed below) to support an ongoing Federal Highway Administration study of construction impacts on collared sheep in the vicinity of Hoover Dam Bypass:

1. Collared ewes from December 2005 through February 2006
2. Collared ewes from June 2006 through December 2006
3. Ewes crossing Highway 93 from June 2006 through December 2006
4. Collared rams from June 2006 through December 2006
5. Rams crossing Highway 93 June 2006 through December 2006
6. Minimum Convex Polygons of all collared sheep June 2006 through December 2006

Other Activities Under Task Agreement

Additional Efforts (Technical Assistance)

At the request of NPS personnel, a PLI research assistant devoted parts of three days to planning and preparation for the Razorback Roundup. This is a cooperative effort of the NPS, US FWS, BOR, NDOW, and AGF in order to census the existing population in Lake Mohave.

A PLI research assistant provided expertise to the NPS Maintenance Department when dealing with nuisance ringtail cats that have taken up residence in NPS buildings. This led to the research assistant trapping and relocating one ringtail cat in late December 2006 and another in January 2007.

Dr. Jaeger collaborated with Mr. Bryan Hamilton (NPS Biologist, Great Basin National Park) in the development of Mojave I&M network protocol development summaries (PDS) for reptiles and small mammals (delivered to NPS I&M coordinator on March 12, 2007).

Meetings Attended and Personal Development – The following information comprises formal local meetings attended by PLI personnel during this quarter. These meetings do not include the multiple and varied informal staff meetings conducted during this quarter with NPS personnel and other collaborators.

Ms. Fletcher and Mr. Barnes attended the Lower Colorado River Terrestrial and Riparian Biology Meeting, January 23-24 2007, Ramada Express Hotel and Casino Santa Fe Room, Laughlin NV.

Ms. Fletcher is enrolled in two UNLV courses as part of her M.S. degree program: Systematics Seminar and Advanced Research Biology, Ecology, and Evolution (Guided Study).

Ms. Drake successfully completed the Motorboat Operator Certification Course held at Lake Mead NRA March 12-16, 2007
Dr. Jaeger was the local committee co-chair for the 2007 meeting of the California/Nevada Amphibian Population Task Force (formally with the Declining Amphibian Population Task Force) held at the UNLV campus January 18-20. This meeting was jointly coordination by PLI, NPS, NDOW, and EPA personnel. Attendance was estimated at 85+ regional biologists and resource managers. Ms. Drake, Mr. Barnes, and Mr. Haley assisted with the meeting organization and logistics.

Professional Presentations and Public Outreach (presenters on multiple authored presentations associated with this task agreement are underlined)

Barnes J. Falcons in the Sky. Public Presentation organized by the NPS Interpretive Division. February, 13, 2007. Boulder City Public Library, Boulder City, NV.


Submitted by:

Margaret N. Rees, Principal Investigator

03/31/2007

Date