

Large Mammal Advisory Committee  
Approved Project

QUARTERLY PROGRESS REPORT

Project Name: **Carson River Deer Herd Project**

2<sup>nd</sup> Quarter: (months/FY): October-December 2013/FY 2013/2014

**Work Performed:**

Deer monitored via Lotek webserver and on the ground. Five collars are currently not transmitting to the server so ground monitoring was increased.

Total scientific aid hours for October through December 2013 were 156. Total scientific aid hours starting August 2012 to December 2013 were 1926 hours.

A poster describing the deer study was presented at the California Science Symposium in October. This poster presented preliminary results on movement patterns (page 3).

**Funds Expended:** see attached worksheet

	<u>This quarter</u>	<u>Total to date</u>
Personnel:	\$2330.79	\$21,983.61
Operating Expense:	\$ 957.56	\$54,926.78
Total:	\$3,948.27	\$76,910.39

**Work Anticipated for Next Quarter:**

Given the technological problems of the company's firmware, and if funding allows, we hope to continue to monitor these deer past the project deadline to increase sample size and project efficacy. We have four collars that Lotek repaired and returned in November 2013 that we can deploy next summer that will add to the information provided to the project's objectives.

Due to collar failure we will need to involve the Department's air services (at \$113/hr) to monitor these deer on a monthly basis starting in January 2014.

Budget Detail Sheet

FY: 2013/2014

Project Name: Carson River Deer Herd

Telemetry Study

Quarter: 2nd

	Quarter		Total to Date
001 Salaries - Permanent			
<b>033 Temp Help</b>	2058.46**		\$21,177.04
083 Overtime	0		0
<b>Total Salaries &amp; Wages</b>	2058.46		\$21,177.04
101 Staff Benefits	272.33		\$806.57
TOTAL PERSONAL SERVICES	2330.79		\$21,983.61
* 201 General Expenses	957.59		\$6,733.50
501 Other Items of Expense	659.89		\$48,193.28
523 Special Items of Expense	0		0
TOTAL OE & E	1617.48		\$54,926.78
TOTAL	\$3,948.27		\$76,910.39

\* add expense columns as needed

\*\* using an estimated Nov and Dec 2013 salary

(\$573.16 and \$124.66 respectively)

201: travel related expenses (TEC's)

501: equipment/webserver for Lotek



# Home Range and Migration Patterns of the Carson River Deer Herd

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## Introduction

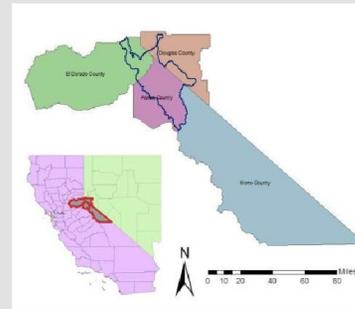
Mule deer populations have generally been declining over the last decade and California and Nevada mule deer populations have not been an exception. The Carson River Deer Herd (CRDH) is an interstate deer herd that summers in California and migrates into Nevada for the winter, returning in the spring. The California Department of Fish and Wildlife and the Nevada Department of Wildlife distribute deer tags for many interstate deer herds including the CRDH. Obtaining current habitat use, migration patterns and distribution of the CRDH will aid in managing the decline and informing decision makers to allow for proper distribution of tags between the two states.

## Objectives

- To obtain current distribution and migration patterns of the Carson River Deer Herd (CRDH) to aid in deer tag allocations between California and Nevada
- To determine cause-specific mortality of radio collared deer
- To estimate home range sizes
- Determine survival
- Determine seasonal habitats
- Map seasonal migratory corridors
- Determine any changes in the herd boundary

## Study Area

The CRDH has historically been found across 3 California counties: Alpine, El Dorado, and Mono, as well as Douglas county in Nevada. The area used by this herd is approximately 2,204 square kilometers. There are a variety of vegetation communities within the study area including wet meadows, aspen, bitterbrush and sagebrush, sierra mixed conifer, and montane chaparral.



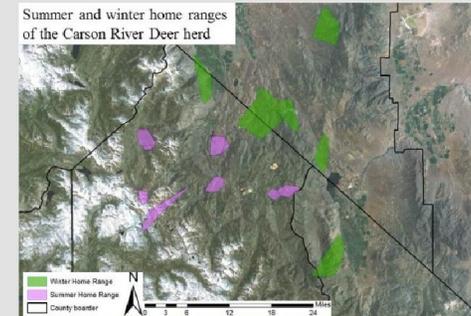
## Methods

- Research began in July of 2012 with data currently collected on 11 female deer. When concluded in 2014 data will be collected on a total of 25 female deer.
- Animals were chemically immobilized using free range darting and a 1:1 mixture of Telazol and Xylazine
- Tolazoline was used to reverse the Xylazine after approximately 60 min. Data recorded included sex, age, body condition, neck circumference, estimated body weight, blood, and hair.
- Collars record 2 to 3 locations daily and 5 or more during migration to determine home ranges and migration corridors
- Home ranges were determined by creating minimum convex polygons from GPS locations in ArcGIS

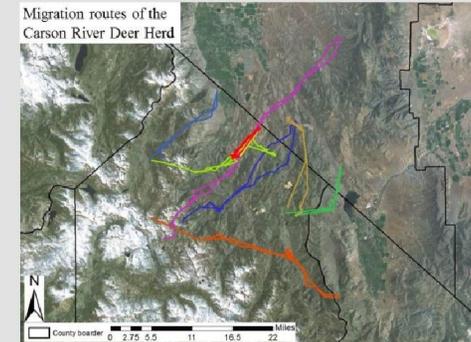


## Preliminary Results

Summer and winter home ranges of the Carson River Deer herd



Migration routes of the Carson River Deer Herd



- The mean winter home range was 15.78 km<sup>2</sup> and the mean summer home range was 5.39 km<sup>2</sup>
- The mean distance migrated was 32 km with a minimum distance of 16 km and a max 53 km.
- 9 out of the 11 deer that survived to spring migration actually moved between seasonal ranges, 2 began migration and returned to their summer range within 24 hours.
- 2 mortalities occurred- the first was likely due to predation and the second was due to pleuropneumonia.

