

## LMAC Project Status Summary: October 1, 2013

### Title of Project:

Translocation Feasibility and Status of Desert Bighorn Sheep in the North Central Region

Project Start Date: July 9<sup>th</sup> 2013

Biogeographic Location: North Central Region

### Project Description

Historical records indicate that bighorn sheep were once plentiful in the Truckee River Canyon and possibly the surrounding Northern Sierra Nevada mountains (Cowan 1940 & Hall 1880). As reintroductions of desert bighorn sheep (*Ovis canadensis nelsoni*) have occurred in other historical ranges of the state and has been successful along the borders of Nevada, the potential for evaluating bighorn sheep habitat and returning an extirpated umbrella species to its historical range would benefit the ecosystem and public. Furthermore, as CDFW and other key partners have contributed years of restoration and conservation efforts, a reintroduction of bighorn sheep back into its suitable habitat could provide important "habitat linkages" that could preserve "long term movement corridors" for additional wildlife that also require habitat connectivity (Bleich & Andrew, 2005).

Open conversation has occurred for the past 20 years in the Northern Sierra Nevada mountains about a reintroduction of bighorn sheep and the extent of suitable habitat that still remains, but a feasibility study has never been completed. Therefore, this feasibility study is significant as it will evaluate historical and present home range data, map suitable bighorn sheep habitat, locate domestic sheep allotments, initiate partnership agreements and determine the economic feasibility of performing a translocation. This feasibility study could serve as a CDFW template for future work in California to promote the return of desert bighorn sheep and other extirpated species into their previously occupied home ranges.

### Goal:

The goal of this northern bighorn sheep feasibility study is to determine whether suitable habitat conditions and connectivity still exists in the Northern Central Region of the Sierra Nevada Mountains and to evaluate the risk assessment of reintroducing a once historical extirpated species of desert bighorn sheep back into its natural habitat.

This project will determine and identify locations where bighorn sheep could survive and reproduce and pave the way for a future collar/translocation phase II.

### Objectives:

1. **Historical Reference:** Develop a historic/present bighorn sheep database that contains GPS points of historical sources, sightings, remains and current NDOW reintroduction herds along the border. Historical literature review and archeological history sources will need to be

reviewed and archived. Currently, there is no historical data that has been logged and virtually most of it exists in literature review and hard copies in file boxes.

2. **Habitat Suitability Models:** Create and analyze a GIS database that models vegetation cover, elevation, aspect, slope, snow cover, private land parcels, and domestic sheep allotment areas to better define bighorn sheep suitable habitat ranges for a reintroduction. This initial habitat model will serve as an initial guide that will allow biologist to analyze specific areas of concern, connectivity ranges and determine public and internal stakeholder partners.
3. **Risk Assessment:** Construct a risk assessment matrix that scores the five main assessment plots selected above from the GIS habitat model on a number scale. The criteria evaluated will include, but not be limited to domestic sheep grazing allotments, habitat connectivity, predation and other stressors, highway crossings and human disturbance.
4. **Economic Analysis:** The economic concerns of a translocation and monitoring initiative will be researched and discussed by the unit biologist in the feasibility survey. The fund for the phase II translocation will come from CDFW, internal stakeholders, non- profit grants (Nevada Bighorn Sheep Unlimited) and NDOW. Further analysis will take place after partnerships are aligned.
5. **Partnership Committee:** Key partnerships need to be established with NDOW, USFS range managers and private land owners in order to identify active domestic sheep parcels and to establish geographic restrictions to decrease the risk of domestic sheep interaction.
6. **Feasibility Plan Template:** This feasibility plan would serve as a current template to promote future subsequent plans of reintroducing extirpated species back into their suitable historical ranges.

### **Accomplishments:**

This project was started in July 2013 and has been underway for three months. It currently is ten percent completed with a finalized feasibility survey and initial habitat models due by December 2014. Ongoing literature review and the first draft of the strategy plan have been completed for the feasibility study. The initial GIS map model is depicted below in red and consist of a criteria that defines highly suitable bighorn sheep habitat, which was created by Hells Canyon Bighorn Sheep Restoration Committee and Payette National Forest. The three main components that are incorporated in this model are escape terrain, horizontal visibility, and perennial water. The other additional layers added to this model include five potential CDFW bighorn sheep ranges, current USFS grazing allotments, private land owners, and NDOW bighorn sheep distribution. Furthermore, this preliminary GIS model has allowed the unit biologist to analyze potential bighorn sheep ranges in relation to habitat connectivity and risk assessment and further has initiated a scheduled reconnaissance flight over these selected areas for an expert review on October 14 2013. Many expected drafts will be anticipated as continued research is performed and data analyzed.

### **Findings/Observations/Issues/Maps:**

The three main observations from the initial habitat models seen below show that the northern plots, which involves Babbit Peak and Truckee River Canyon, are enclosed by active USFS sheep and cattle

allotments. In addition to active permits, the northern plots need to be further researched in detail as private land ownership is prevalent and suitable habitat could be patchy.

Secondly, the southern plots, known as, Woodfords and Silver Creek, appear to be highly suitable bighorn sheep habitat as there are no active USFS or BLM domestic sheep permits allocated and very little cattle surrounding the areas. The existing escape territory and south facing slopes of the ridges hold high potential, but further GIS models that include snow and vegetation cover need to be researched further to connect summer/winter range suitability.

Lastly, the Carson Pass plot does not meet the suitable habitat requirements needed to secure the long term viability of a bighorn sheep population. The Carson Pass habitat is surrounded by domestic sheep allotments, patchy meadows and lack of escape terrain.

The next steps in the feasibility survey include reconnaissance flights, GIS summer/winter range modeling and key stakeholder meetings with USFS and private land owners. One of the major challenges of this project is being able to properly define historical data and find liable sources that can support the conclusion of a historical bighorn sheep home range. Literature review and museum databases are being searched for data acquisition.

### Northern Tahoe Areas



