

Cade Crookshanks

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Conservation Aide I

Lathrop & Capurro Intern Year End Report

To preface this report, I would like to begin by thanking those individuals and organizations who made this opportunity possible for me. I cannot express how thankful I am for the Nevada Department of Wildlife and the Biologists who I worked with this summer who consistently supported me and guided me throughout this new experience. This department and these individuals taught me an immense amount of real-world applicable knowledge that I might not have received in the classroom. Being a first year Lathrop/Capurro Intern, another huge thank you is deserved to my work partner Josh Kirk who has been in this position for two years prior. Spending nearly every single day this summer together -often alone- I am thankful to have absorbed the knowledge he was able to share from his own experience. Finally, this entire program would not exist without Nevada Bighorns Unlimited and the Nevada Record book. It is an honor to have such amazing conservation organizations contribute so much to my academic and career learning opportunities. To work in this position for the entirety of my summer was a childhood dream come true.

When I received the call informing me that I would be hired as a Lathrop/Capurro seasonal, I didn't entirely know what to expect or even where I would be stationed until a couple weeks before my start date. When I found out the details of my position, being placed in Elko NV, working in the eastern region, was about the best news I could have received. I love this area of Nevada and have grown up hunting and fishing around both Ely and Elko, living in Ely for the first 10 years of my life. Even as I felt that I knew this region fairly well, this summer did

not fail to amaze me in showing me several of Nevada's hidden gems. Whether it was the knife edge cliffs of the East Humboldts or the beautiful native Redband Trout of the Bruneau river, this summer was full of breathtaking sights and unique experiences.

I began my summer tasked with locating and retrieving a deer mortality collar near Gold Creek, north of Wildhorse reservoir. This happened to be my first introduction to the use of telemetry which I would soon come very familiar with. Before we left, Area 6 Biologist Travis Allen gave us a quick lesson on the device and working with different signals and variables in order to be most effective in the field. Here we discussed the different functions of the receiver such as gain, volume, and drift which all can be manipulated to find a strong signal and determine distance and direction of your VHF collar. These collars are also equipped with a GPS signal, allowing us to know the general vicinity of the device so that we could then use telemetry to obtain a precise location. Once we find the collar, we are then tasked with doing a mortality investigation (if the animal died while the collar was on) to try and determine the cause of death. During this



investigation we examined a variety of different body parts as well as the overall kill site. In our investigation, we concluded that this animal was in fact killed by a mountain lion due to the drag marks down the hill, the cached carcass, and the crushed skull fragments. In retrospect, many of the things I learned on this first day would help me fairly consistently throughout my summer work.

After this first afternoon we were sent to the Snowstorm Mountains to locate Bighorn Sheep ewes to conduct lamb production surveys. These surveys are a running count each year on

specific collared individuals to determine the health of each herd. With the rise of public grazing of domesticated animals in Nevada also came the rise in a new pathogen; *Mycoplasma Ovipneumoniae* (M. Ovi). This pathogen carried by domestic sheep has caused an immense amount of harm to Bighorn herds across the state. The production and recruitment of lambs is a great indicator that can display whether a herd or individual is infected with the M. Ovi.



pathogen. Fortunately, we were able to locate all collared individuals within the Kelly Creek basin and the Owyhee Bluffs. Our third herd residing in a drainage of the South Fork of the Little Humboldt river proved to be quite difficult. After spending the entire day trying to locate these sheep without any signal on our telemetry

equipment, we were forced to leave empty handed. Being that these sheep were in a rocky gorge, this was an excellent lesson on some of the troubles and frustrations that can arise while using telemetry equipment. Obstructed by the large rocks, the signal was bouncing away from our equipment even though our location was well within range. During this week I was able to learn and witness firsthand conservation efforts in Nevada to help rehabilitate this mountain range after a previous M.Ovi. die off. These lamb recruitment surveys would soon encompass a large portion of my summer work.

The following two weeks of my summer experience resided around Ely Nevada performing elk incentive work. The Elk Incentive Program was completely foreign to me before working on this project and provided me with a different approach to conservation and

management. In short, this program incentivizes private landowners to keep and encourage elk use on their property by giving these individuals elk tags in the respective hunt unit where they are located. These tags can then either be sold by the landowner or used to harvest an animal.

Our job was to visit each private parcel and determine how many elk were using this land based upon sign such as tracks or fresh pellet groups. A huge learning opportunity came when Ely

Biologist Kody Menghini accompanied us on one of our elk incentive work days. With him we performed repeat photography that hasn't been looked at since the 70's. Standing in the same location and framing the photo to

capture close to the same exact image, we are able to witness changes in the environment right in front of us. The biggest thing these



photos were able to display was the encroachment of pinyon and juniper trees and the subsequent loss of grasses and shrubs. Examining these photos and the changes to the environment really opened my eyes to how fast and dramatic this encroachment can be.

Following our elk incentive work in Ely, we switched gears to assist on a habitat project in the upper Brueno River area. The main project for this week was to construct Beaver Dam Analogs in the bottom of a small tributary to the river. Over years of heavy runoff and cattle use, this streambed was lowered and cut back as sediment drifted downstream. These Beaver Dam Analogs, constructed from wooden stakes and large pieces of brush, would hopefully be able to catch and deposit sediment during runoff to raise this streambed to its original floodplain. I have volunteered with the department before obtaining this position, however I was never introduced

to habitat work. This division is not only vitally important to our wildlife, but this project showed me how interesting and complex manipulating our natural environment can be. From an outside perspective, the banks of this small creek might not seem like a large issue. Learning about how this small area can affect the entire river system was a unique and new opportunity.

Building upon the lamb recruitment surveys performed in the Snowstorm Mountains, our next week utilized the same survey except this time for mountain goats in the East Humboldts. While my entire summer was full of amazing opportunities, this week might have been the highlight of my entire position. Backpacking four miles up the steep and rocky peaks of the East Humboldts was enough by itself, but then to add a dozen mountain goats was nothing short of a dream. Here, our kid production surveys were performed to help collect the same insight on M.Ovi. infection within this range. Fortunately, most of the nannies we located this week had a kid with them showing us healthy production throughout the herd. During this week I was able to work with mountain goats for the first time, providing me with a ton of new knowledge and insight about the species and their history within Nevada. We pulled camp Wednesday morning after we had located our goats to head over near Angel Lake in hopes of locating some collared Bighorns to check on their production rates. This was another learning lesson in telemetry. This time we could get a signal but no matter what vantage point we hiked to, we were unable to locate these individuals. We concluded that these sheep were actually in the next canyon over and this signal must have been bouncing over top of the ridge off of a big cliff face. This week

full of spectacular views, amazing hikes, and work with some of the most remote animals on earth will surely be remembered as one of the high points of my working summer.

After leaving the goats in the east Humboldts, the next week found us back in the Snowstorm Mountains locating our same collared ewes. This time we would be observing recruitment of the lambs instead of production. Knowing which ewes had produced lambs, we needed to look and see if those lambs were still

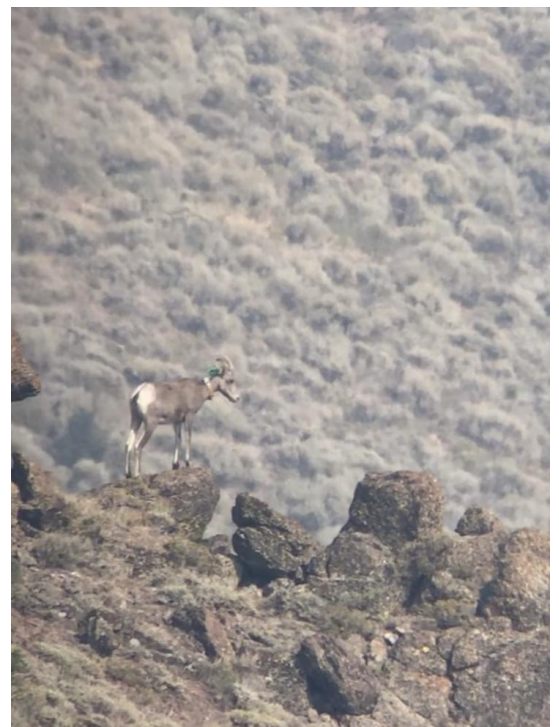


alive. A good indication of the M. Ovi. pathogen being present in a population would be the failed survival of these lambs. This week yielded positive results as we were able to locate these individuals and determine that these lambs had not suffered any casualties.



The next week began with gathering some dropped collars around the Beaver Peak area, north of Carlin. Following this we were able to

accompany Area 6 Biologist Travis Allen in his search for a collared moose east of Wildhorse Reservoir. Another lesson in telemetry came when this signal was nowhere to be found in the early morning hours even though we were



in very close proximity to her last GPS uploaded location. After searching and listening for hours we had realized that this particular collar was running on a duty cycle meaning that it would only be operational between specific times. Once the collar turned on at 8:00am, we were able to pick up her signal and began to move in. Located within a thick aspen patch, we left Josh up above to watch while me and Travis went into the aspens. Moving slowly, eventually we were able to come right up on her through the trees to see that she had a calf with her. This moment was breathtaking. To be so close to such a big animal completely unnoticed was genuinely special. Not wanting to disturb the mother and child, we quickly moved away from their position and headed out of the aspen patch. Working

with moose in Nevada is a particularly unique opportunity in the fact that this is a new species to our state and our baseline knowledge is fairly limited on how they play a role in our ecosystems. As the future progresses and our knowledge of this species continues, it



will be meaningful to know that I was able to work with these animals at the forefront of their establishment within Nevada.

Our following week consisted of more of this unique work observing moose, however this time in Area 7 accompanied by Biologist Kari Huebner. This week we located three cow moose with three calves; two of which were twins! We were also fortunate enough to be able to locate and view a collared bull moose. While this individual would not have calves with him, we figured that since we had time it would provide good data to capture pictures and look at the size

of his antlers to compare this to when he was first captured.

He had in fact grown which shows that these animals are able to live and sustain themselves in Nevada.

For our next week we would find ourselves once again back in the Snowstorm Mountains locating our collared ewes.

When we arrived at our base camp and started unloading the truck and trailer, we noticed something missing. One of our

ATV's seats had blown off during the drive out. Unaware of where this piece might have blown off, we were then tasked with making the two and a half hour drive back to Elko trying to locate it, only to find out that it had blown off in a construction zone about half a mile outside of Elko.

This was a mistake that we would be sure not to make again as it limited our time that would have been spent looking for sheep. Regardless of this event we were once again able to locate all the collared sheep and all of their respective offspring showing positive data against M. Ovi.

infection within the range. While in the snowstorms we were given a new task and asked to run a rabbit route. These routes are a given transect to be surveyed each year where you drive slowly in 3-mile segments at night and mark how many individuals of each species you observe. This is

another unique opportunity to help on establishing new data in our state. These surveys would provide a general baseline for rabbit populations in our state which could then be used as evidence to better explain phenomena concerning wildlife conservation in Nevada. This data is

important not only because we didn't have a concrete trend previously, but mainly because

rabbits play such a large role in the food chain in many of Nevada's ecosystems. For example,

this general understanding of population numbers could help biologists give reason to a decrease in predator numbers and a subsequent increase in the number of individuals in a particular deer



herd. This survey proved to be a reminder to me that when looking into conservation, many factors that seem like they might not be directly related can have an unnoticed impact on a larger scale.

After running some more rabbit routes and performing chukar brood surveys near Battle Mountain, I was fortunate enough to spend my last week of my internship back up in the East Humboldts, locating our collared Mountain

Goats. Like the surveys in the Snowstorms, we would now be conducting recruitment surveys on the previously produced kids. To our excitement, this data also supported a positive trend in kid survival. This was an awesome week to cap off my



summer experience and I couldn't think of anything better than watching Mountain Goats navigate steep cliff faces on my last day.

Overall, I cannot express the gratitude for those that were able to make this opportunity a reality for me and I am extremely thankful that I was fortunate enough to experience this position and everything that came along with it. While I found enjoyment every single week performing work in the field which I have a passion for, there were certainly mistakes and troubleshooting along the way. Without these instances and hiccups however, I do not feel that I would have left the eastern region with the same knowledge content that I have. I strongly believe that I will be able to utilize every experience and the knowledge that came with them in my future endeavors within this field. Once again, I would like to thank the Nevada

Department of Wildlife, Nevada Bighorns Unlimited, Nevada Record Book, and the many biologists who were able to make this summer a reality. I cannot wait for what lies ahead of me in my future pursuit of this career which I feel so passionately about.