

Joshua Kirk  
Lathrop & Capurro Internship Year End Report  
Conservation Aide III

### The Summer of 2021

Don't blink. A phrase that I have never truly understood until very recently. It is mind boggling to think how fast this experience has gone and how critical it has been in laying a foundation for my future in wildlife conservation. At the start of the summer, I was eager to jump back into this internship for my last summer following the unfortunate shutdown brought forth from the COVID-19 pandemic. Last summer I worked for the BLM fighting wildfires across the west, and as fortunate as I was for that humbling experience, it really solidified what I want to do as a career choice. My final summer as a James Lathrop and Wayne Capurro intern was nothing short of amazing. I was blessed to gain more experience, continue to build new and existing relationships, as well as observe the rewarding nature this job so often brings. I am excited to finish this internship up and take the next step in my future endeavors. I am beyond thankful for the opportunity and the countless experiences I have received along the way.



This summer, I was in the Eastern region working for all the big game biologists. I feel biased in saying that the Eastern region is the best region to work in, only because I have spent two of my three summers there. The Eastern region is as diverse as it gets, from white-tailed jack rabbits to the almost unreachable mountain goat. Not to mention the unique landscape it

provides, the low sagebrush steppe of the Crescent Valley to the sheer rock amphitheater of Humboldt peak in the East Humboldt's. I was lucky to share this summer with a first-year Lathrop/Capurro intern, Cade Crookshanks. There was never a dull moment this summer with Cade, whether we were sweating in the blistering heat rebuilding a bridge or watching California bighorn sheep lambs frolic on some boulders.

Although we did so much this summer, this report will be focused on the larger events in which I felt were the most notable. In doing so, I can explain in detail these events and what I have learned extensively from them.

Many times, throughout the summer, we were sent to the Snowstorm Mountain range in unit 066 to conduct a California Bighorn sheep production and recruitment surveys for game biologist, Matt Jeffress. Wild sheep have become a large passion of mine so this survey, along with the other weeks of sheep survey, were some of my favorite parts of the summer. The goal of this survey was to locate marked ewes to see if they had produced a lamb and check back later to see if the lambs were recruited into the population. This population, however, is recovering from a die off caused by the devastating *Mycoplasma ovipneumoniae* (*M. ovi*) outbreak that has been prevalent in many of Nevada's wild sheep populations. This respiratory pathogen is introduced to wild sheep through domesticated sheep, and it primarily targets young of the year. Adults who



are *M. ovi* positive are usually unaffected from the disease, but they pass the pathogen to lambs who can die from respiratory failure. Without critical lamb recruitment, population growth is minimal year after year. A fun fact however, if *M. ovi* is present in the heard, and lambs appear

to be in good condition by the end of August, we could assume that they will be strong enough to fight the pathogen and be recruited into the population. This year, we observed incredible lamb recruitment out of the three sub herds in the Snowstorms. This is extremely exciting news, especially for Matt Jeffress and many of his colleagues who have spent many years helping this herd recover and thrive again in the area.

The next few weeks had us driving down Highway 93 to Ely to assist game biologist Cody Menghini in elk incentive surveys, and guzzler checks. He had multiple private parcels throughout area 11 in the Kern mountains as well as in the south Egan range in area 22. Nevada's elk incentive program is a way to compensate private landowners from elk using their parcels. Landowners are compensated a tag or a few tags, based on the recorded use on their property, in which they can hunt themselves or sell to hunters for a profit. To conduct elk incentive surveys, one would simply walk the parcels looking for most recent elk sign. We counted recent pellet groups and made note of tracks and figured the number of individuals that were utilized the area every day. The data from the survey is then plugged into a rigorous and accurate formula that will allot a quota for that parcel. This is an important program that strengthens the departments relationship with private landowners and helps keep elk and other wildlife on the mountain. While checking parcels, we also checked on a couple big game guzzlers. We recorded water level, any damage to the guzzlers, and recorded sign in and around the artificial water source. It is important to keep tabs on these guzzlers throughout the year because they are at times, the most reliable source of water for many wildlife species in the area.

A particularly interesting and special experience this summer was looking at some old photography of the rangeland around Ely and comparing them to the present state. Cody came across old photos from the late 70's and early 80's and he wanted to get modern pictures of the

same locations to get an idea of habitat succession over the years. After the wild goose chase finding the locations of the old pictures, we were amazed at the changes in landscape, and unfortunately not for the better. The comparisons showed large invasive cheat grass colonies, Pinyon and Juniper (PJ) encroachment, and a loss of biodiversity. While comparing the old picture to the rangeland I was looking at in the present, I felt somber to think about the critical habitat that was lost and the direct affect it had on many wildlife populations. Habitat is one of the most influential drivers to wildlife populations and to see the array of disturbance and the amount of habitat lost was an uneasy feeling. I hope in the future we will be able to continue to mitigate habitat degradation issues like PJ encroachment, feral horse populations, domestic grazing strategies, and invasive control to reestablish this native habitat that would positively affect wild populations in the future.



The following larger project had us traveling into the desolate and rugged canyon of the Bruneau river to assist in some habitat projects on the Wildlife Management Area (WMA). There was a to do list as deep as the canyon, but with lots of help and good attitudes, we were able to complete the tasks at hand. The first task of the week was to demolish and build a new bridge just downstream from the main WMA campsite. The bridge was old and dilapidated and with another brutal winter, it would be sketchy to get across. In just about a day's work, a new,



structurally sound bridge was up and running. To kill some time, there was a plethora of clean up to do around the WMA like fixing fence, clearing debris, and cutting trees and dense shrubs that help make the area welcoming to the public. The most important task of the week, however, was creating beaver dam analogs (BDAs) to a tributary stream of the Bruneau river. BDAs are man made beaver dams that artificially pool water and act similarly to natural beaver dams. After constant cattle grazing, the stream was cut and trampled well below the surface of the meadow and the riparian area and biodiversity was lacking full function. The purpose of implementing BDAs was to increase the bank stability using the natural sediment that will flow down to the dam where it will settle on the bottom while the water flows over the top. With time, the deep cuts will fill up naturally and we will see a significant increase in biodiversity and a healthier riparian area. This was a fun project because it was almost immediate gratification, as the dams were in place, the water began to pool immediately. It will be cool to circle back to the stream in a year or two to see how big a difference the BDAs made on the riparian area.

Following the WMA cleanup and habitat restoration work, we found ourselves backpacking with heavy packs high into the East Humboldt range to set camp at Steele Lake. On this trip, I certainly realized that I am one of the luckiest people on earth. I had a job that allowed me to hike around the mountains and look for, in my opinion, the most majestic species in North America, mountain goats. These sure-footed animals could not keep a smile from my face the entire time. We had a handful of collared nannies (females) to locate and identify if they had



produced a kid this year. Like the production/recruitment surveys previously mentioned with bighorn sheep, we monitored the goats a couple times throughout the summer. Unfortunately for this mountain goat population, they are also recovering from a *M. ovi* outbreak and have seen the worst of it in years past. Mountain goats are part of the Bovidae family so the pathogen can transmit to them from domesticated sheep and goats as well as other infected wild sheep. Again, this disease affects their respiratory system and can decimate a population like we saw here in the East Humboldt's and part of the Ruby Mountains. After countless miles hiked in the steepest country Nevada has to offer, we located all the goats. To our surprise and amazement, every nanny had a kid except for one! After looking at her records, we weren't overly surprised that she didn't have a kid due to the fact she was 13 years old, well passed her productive years. After circling back later in the summer, we were excited to see we had close to 90% recruitment rate this year. Watching the kids, just a few weeks old, mountaineer the sheer cliffs like professionals



was a remarkable experience to say the least. There really are no words to explain the animal's capabilities.

A new experience that I experienced throughout the summer were rabbit routes. This is a relatively new, long-term study that is taking place in Nevada. This survey begins a half hour after sunset and runs along a transect for a certain number of miles at no more than 20mph. You

simply count and identify the rabbit species that run across the road and record it on a sheet of paper. Rabbits, throughout most of the state, are the primary prey species among the common predators on the landscape. Rabbits are also an indicator species that can help identify the overall health of the landscape. If rabbits are doing well, it can be safe to assume that their counterparts are doing the same. This study may not provide immediate data, but in 10 or so years, we may be able to analyze and infer certain population dynamics like fawn survival and recruitment rates of mule deer and pronghorn in relation to prey switching. With some time and these data, we might find a correlation and an extra variable, or tool in the toolbox, to aid in mitigating population decline for some species.

As I write this last portion of the report, I realized this was the part of the summer I gained a true appreciation and gratefulness for this internship. I could hardly believe the experiences I had already received thus far through, unaware of the amazing things that were to come soon in the future. With that being said, the following week had us in parts of area 6 and 7 searching for an increasingly popular and newly established species to the state of Nevada. Thanks to the collaring efforts this past January we were able, for the first time ever, locate some cow moose to see if they had produced any calves. This survey was so surreal to me because this is start to Nevada moose population monitoring. With these data we can more accurately analyze an estimated population as well as other dynamics such as moose migrations, utilization areas, and survival and recruitment rates throughout the state. Of the handful of cows, we had collared, all but one cow had a calf, and one cow had twins! This was an extremely exciting result because we can infer, with support from our small sample size, that Nevada's moose population has the potential to almost double this year. Nevada's moose population will be extremely exciting to follow and hopefully help with throughout the years.

Since I have graduated from the University of Nevada, Reno this past spring, I was lucky to have an extended summer, compared to the other interns who had to return to school. In this month long extension, I participated in multiple opportunities that has helped enhance my knowledge tremendously. I participated in the Western Association of Fish and Wildlife



Agencies deer and elk workshop and tuned in to multiple presentations on today's management strategies, state wildlife updates, and many interesting studies aimed to benefit deer and elk populations throughout the west. I also conducted Rocky Mountain bighorn sheep lamb recruitment surveys in unit 074 and I performed multiple chukar brood surveys throughout Elko County. The coolest part of the extension was participating in Desert bighorn sheep aerial surveys in area 13 and parts of area 16. Flying is a huge part of a wildlife biologist's job. These aerial surveys are more efficient than by foot and allow for larger sample sizes to be efficiently classified, which is critical information for quota recommendations. Flying is quite the adrenaline rush, especially after spotting animals and

swooping back around to classify them. I was grateful for the opportunity and am happy to say that I can fly effectively and comfortably which excites me for my future in this career.

As I finish working out the rough edges of my final summer report as a James Lathrop and Wayne Capurro intern, I cannot help but think how thankful I am to have had this opportunity the past three summers. I cannot believe how fast these past couple years have gone



and how important they are in my being. Looking back, it is amazing to see how I have grown in the past couple years. Like hunting and fishing, wildlife conservation has become a huge passion of mine and I am excited to see where it will take me in the future. I have been fortunate to seek Nevada's wildlife through a different scope, other than that of my rifle's. I cannot thank the Nevada Department of Wildlife and the Eastern region biologists, Nevada Bighorns Unlimited, and the Nevada Record Book, as well as anyone else who made this incredible opportunity happen. The wealth of knowledge that I gained will most certainly be used in the future. I am honored to have been a recipient of the internship named after these men (James Lathrop and Wayne Capurro Memorial Internship), who both made incredible contributions to Nevada's wildlife, and I hope I can do the same.