Cade Crookshanks

2023

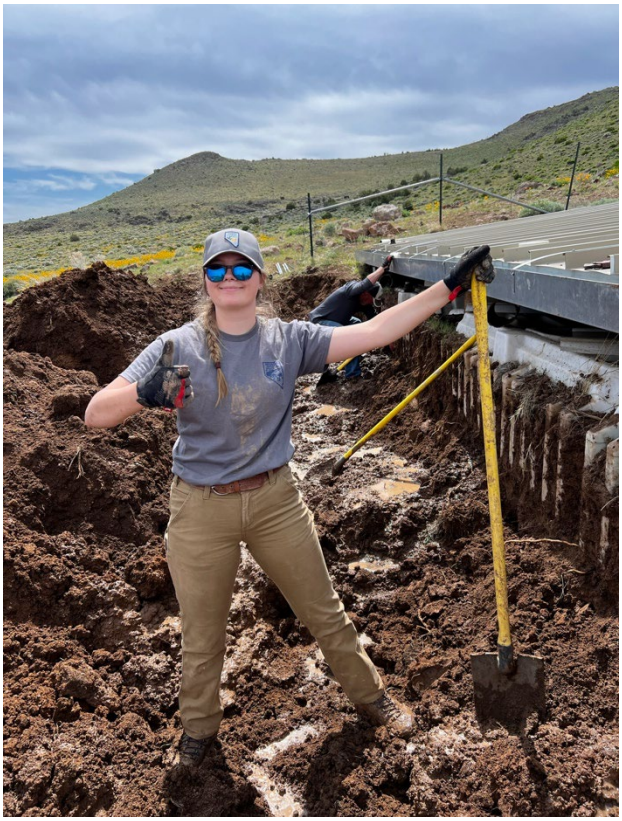
Conservation Aide 3

2023 Lathrop & Capurro Intern Year End Report

While wrapping up my third summer as a Lathrop and Capurro Intern, working for the Nevada Department of Wildlife (NDOW), I can't help but once again smile in reflection of what has been yet another summer full of learning, development, and new experiences. Having written this report for two years prior, I view this task as a privilege instead of the chore that your average young adult might view writing an essay. Instead, I see this as a ritual where I can relive and revive memories from my time at work that otherwise might have been drowned out by the daily routines of school, work, and chores once my summer has concluded. It is during my assemblage of this report that I am overcome with appreciation and gratitude for the people and organizations that have supported me through this position as I prepare for a career in wildlife management. I first would like to thank Nevada Bighorns Unlimited and the Nevada Record Book for supporting this position and providing myself and fellow peers with the multitude of learning opportunities that encompass our summers. I also cannot thank the biologists and staff members of the Nevada Department of Wildlife whom I worked with and learned so much from. It is without question, that every member of the department who we worked with was dedicated to teaching and mentoring both myself and my partner. Lastly, a big thank you is deserved to my summer partner, Hailey Lattin. As she was a new student to the program, I was fortunate enough to have the opportunity to introduce Hailey to many of the survey techniques, procedures, and daily processes that encompassed our summer positions. In doing so, Hailey herself always managed to teach me new ways to look at a particular subject or issue and inspired me to learn

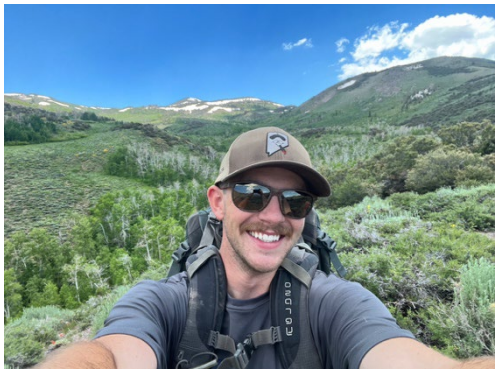
more and dive deeper. Without the people and organizations responsible for my position, the inspiration and real- world knowledge I have gained through this experience would not be possible.

My summer as Lathrop and Capurro Intern started abruptly with the repair of a guzzler system in the Virginia Mountain Range, just outside of the population centers of Reno and Sparks Nevada. This guzzler system was leaking water due to defects in the valve systems over the previous winter. Biologists were able to determine this based upon the lack of water in the storage tanks following a very high snow year, as well as the large area of wet soil adjacent to the tanks. Following the immense snowfall of the prior winter, these tanks should be overflowing with stored water for wildlife to utilize all summer when other sources are unavailable. After excavating the valve systems with a backhoe and some elbow grease, we worked alongside game biologists and water development biologists to repair the valve system and restore connectivity to the tank system. Guzzler tank systems are all built to utilize the forces of gravity in order to bring water from the storage tanks to the drinker (where animals can utilize this water source). By using gravity, it eliminates the need for a mechanical pump which would provide an area for probable failure in the future. Wanting these systems to be as durable as possible, needing minimal maintenance, a mechanical device such as a pump would not be in the best interest of

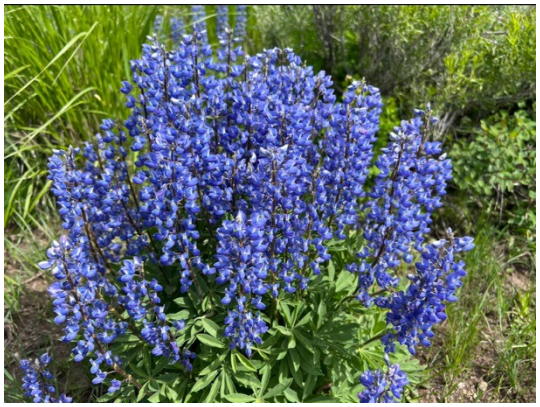


biologists responsible for guzzler repairs. The simplified design also helps to make repairs like this less complicated. Once the valve systems were replaced, the tank ends were buried once again, and fencing was restored to keep animals off the large water collection apron. The primary use for this guzzler will be the population of bighorn sheep that resides within the Virginia range. This provided a unique experience in that I have never worked on the plumbing in a guzzler tank system. This project proved to be a great introduction to our summer of work, and it allowed me to better familiarize myself with another aspect of a big game guzzler system.

This will likely not be the first time I mention the high levels of snowfall experienced in the winter before my summer of work. Everywhere we seemed to travel, it appeared as though the wildflowers were booming, and the once yellow grass was now leprechaun-green this season. Many people don't regard Nevada to be a state that is known for its gorgeous views; however, I am a firm believer that those people just don't know where to look.

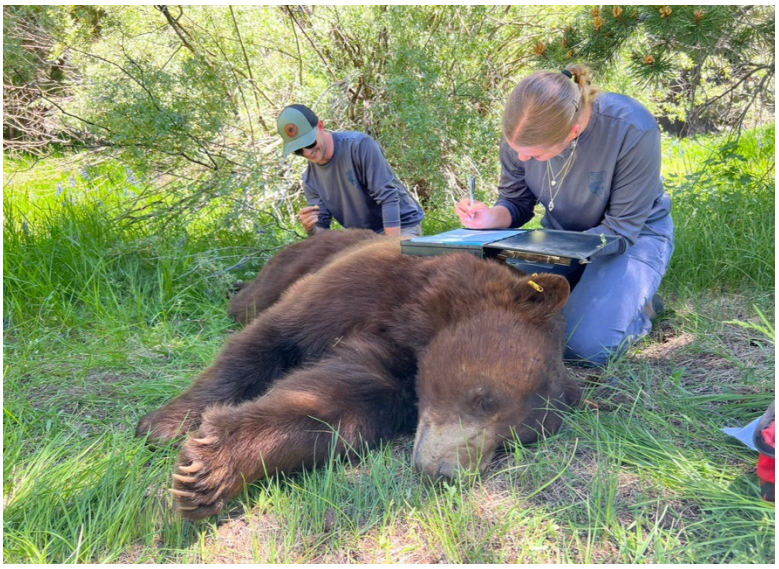


Between the abundant vegetation and snow-capped peaks, I have never seen my home state as beautiful as it was this summer. This winter turned the dry desert landscape into one that was now abundant with life. It was truly amazing to witness what a good, hard winter can do for wildlife resources in the desert ecosystem. We were able to witness giant broods of chukar nurturing steams that ran dry for several previous summers. Overall, this weather pattern provided a unique look into Nevada's wildlife management, and I am glad I



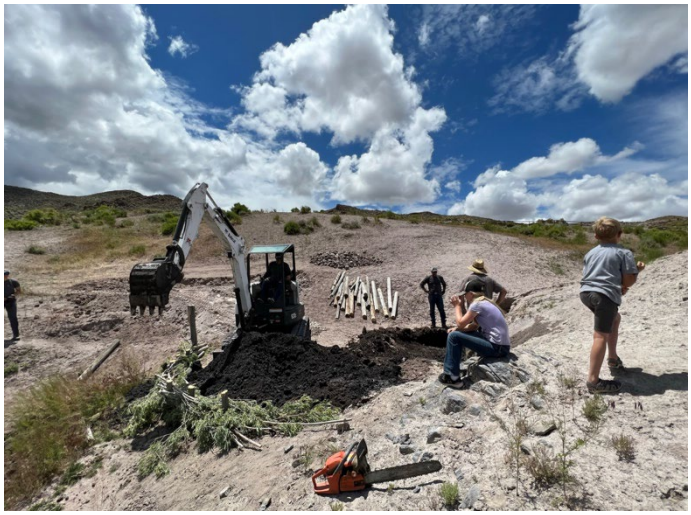
was able to witness and learn how managers adapt to altered conditions such as this.

My summer would then continue working with black bears and the urban wildlife interface. Biologists Carl Lackey and Becca Carniello work in the Western region, primarily dealing with human-bear conflict mitigation. Working under these two professionals was a privilege and provided me with an immense amount of learning and training that is applicable in so many facets of wildlife management. Having worked with black bears in my previous summer, I was eager to return to this area of study. One thing that became more apparent to me this summer through work with biologists Lackey and Carneillo was that the entire premise behind human-bear conflicts seems to be somewhat misunderstood within the general population in the urban areas of Reno, Carson City, and Gardnerville. Many individuals claim that these animals are “moving into town” and “coming down further every year”, whereas the real underlying cause of increased interactions is the rapid rate of expansion and encroachment of the urban interface into areas previously maintained to be habitat for wildlife. So instead of black bears coming into our areas, truthfully, we are just expanding our reaches into theirs. Received bear calls from the public usually consisted of an animal getting into trash cans, climbing up and snacking on bird feeders, or poking their heads around chicken coops. All these instances resemble bear attractants that are unknowingly or carelessly left out by humans living in areas where bear activity exists. While some instances slip



through the cracks, it was learned through our bear biologist supervisors that as homeowners who live in areas with bear activity, it is OUR responsibility to make sure that these conflict interactions are minimized. Following a bear call, we would often place a culvert trap at the location of the incidence after talking with the homeowner. After trapping a bear, Hailey and I would then participate in the tagging and data collection processes that are performed in order to catalog the individual animal into data records. The animal would then be released in mountain ranges away from urban interfaces to discourage activity in that area. The hands-on experience provided by biologists Carl Lackey and Becca Carniello punching ear tags, collecting samples, and monitoring vital rates, provided to be a huge opportunity for learning this summer. Both professionals have a strong history working with black bears in the west and were able to field any question that arose during our work.

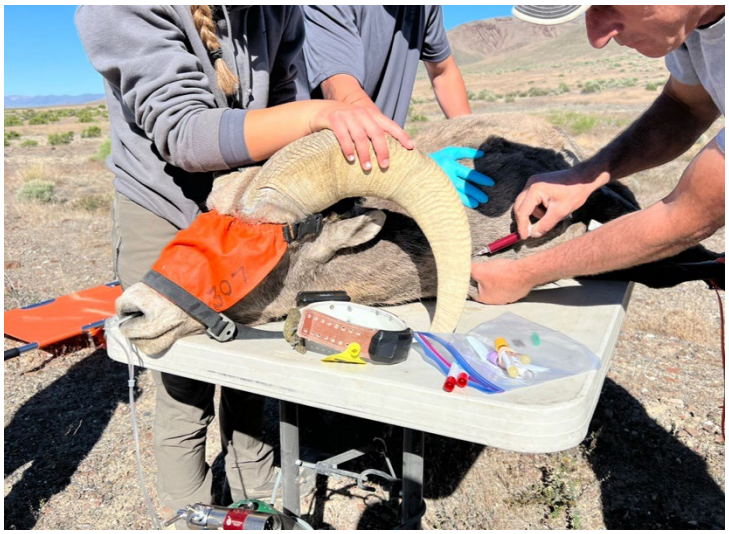
Our next area of work this summer would find us working under game biologist Jason Salisbury and habitat biologist Kenny Pirkle to restore a spring in the Gabbs Valley range. Having seen heavy use from livestock, this spring was essentially a puddle with a trickle of water that flowed through bare, dry soil. Prior to our restoration efforts, the spring and surrounding area was fenced by NDOW employees in order to minimize damage done by livestock. In our efforts of restoration, beaver dam analogs (BDA's) were used to catch sediment from the water flow in order to build up the floodplain and help to catch more water and create a lusher riparian environment. In addition to structural BDAs, our team also hauled several loads of rock to the spring



head which was added to the excavated pond area to provide stability and prevent the area from refilling with loose soil. Finally, the immediate riparian area and surrounding locations were all seeded with native riparian vegetation and native shrub and bunch grass species. After fencing the area, restoring sediment deposition, and reseeding to bring back healthy vegetation, it is hoped that this spring will provide an oasis of nourishment to the bighorn sheep and antelope populations that might utilize it. As I continue to work my way through school, studying fisheries and wildlife resources, we often hear about habitat restoration and how important projects like these are. While restoration is certainly stressed in our school environments, one does not truly gain an appreciation for this work until they preform some themselves. I value this aspect of our employment so highly because I feel as though this work has a direct, tangible benefit to the health of Nevada's wildlife.

During my time in the western region this year, I was fortunate enough to be a part of two Bighorn Sheep captures; the first of which came the week after our habitat project. This capture took place in the Sheep Creek Range, just north of Battle Mountain. In this project, the goal was to capture several rams and ewes to then test and relocate them to an area in northern Washoe County to help reestablish the presence and strength of bighorn sheep in this area. As mentioned, these individuals were all tested for Mycoplasma Ovipheumoniae (*M. ovi*). Brought to the wild landscape by domestic sheep herds, *M. ovi* is often a fatal infection of the lungs and sinus areas

that causes death in most individuals in a population. Due to the social behavioral tendencies of bighorn sheep, once introduced, this infection is spread rapidly and has the potential for serious damage to a herd or population. Testing prior to relocation was crucial to ensure that this disease wasn't being reintroduced into another area via an infected sheep that was relocated by the Department of Wildlife. Thankfully, all sheep tested negative, and the captured individuals were released into their new range. Now having worked with the department for three summers, I have become familiar with this disease and have seen the vast impacts that this infection has made on bighorn sheep management throughout the state. Although this disease has impacts that often can last a lifetime, the biologists and veterinary staff does an incredible job with managing this disease and making the best out of inevitably bad circumstances. Whenever given the opportunity, I am thrilled to discuss and question different management actions regarding managing wildlife around risks of *M. ovi* infection. I feel as though working in this position has given me a tremendous amount of insight on this disease and experience that would not be gained elsewhere.

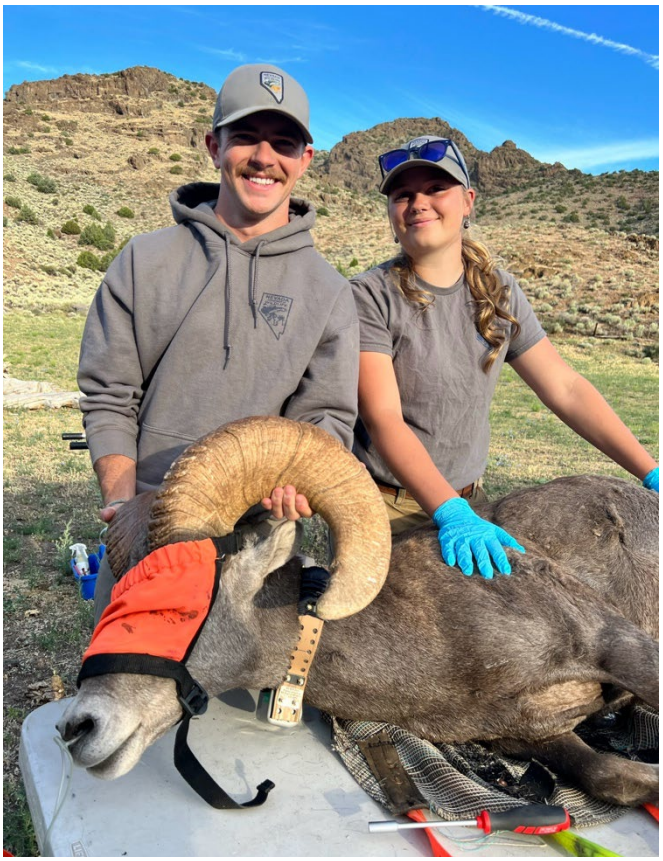


Another large part of my summer consisted of conducting brood surveys on various upland game species throughout the western region. During my season, Hailey and I conducted surveys on chukar, quail, roughed grouse, and sage grouse through the month of July. The premise behind a brood survey is travel a set route each year (usually along a spring or creek) and to find and then classify broods of upland game birds. Chicks in a brood are classified in age

classes I-IV, with one being the smallest of hatchlings, and 4 being near adult sized. In conducting a brood survey, one is required to think on their feet and act fast as they attempt to classify a flying group of 20-60 birds from 40 yards away. Having been able to familiarize myself with these studies for two years previous, this summer I felt as though I was most effective in my time spent surveying broods. By focusing on water sources and using our ears instead of just relying on our eyes to first locate birds, I feel confident in our survey productivity and confident in my abilities as a researcher to replicate these studies with similar results. The data collected from brood surveys is crucial to game biologists as it gives key insights into reproductive rates and overall health of upland populations in each area. Following the huge winter experienced prior to my summer of work, brood numbers showed an immense improvement to surveys I had conducted last summer in the western region. To reflect on an earlier point, I was amazed at the differences a good water year could make in biodiversity and reproductive capabilities on the landscape. This field training and experience is the exact type of thing that cannot be taught in classrooms and makes me feel so fortunate to hold my current position. Spending time in the field and collecting data firsthand on natural populations helps to provide insight and draw connections as to the intricate relationships that resources such as food and water availability have on our desert ecosystems.

In the final weeks of my summer, I would conclude what had been another great season with my second capture of the year. This time working for biologist Jon Ewanyk, captures were performed in northwestern Nevada, north of Pyramid Lake. Instead of capturing with an intent to relocate such as the purpose of the first capture in the Sheep Creek Range, this capture was conducted with intent to test and mark individuals to help better understand population dynamics in the area. When captured, animals receive a unique ear tag marking to later visually identify the

individual, as well as receiving a collar with both VHF and GPS capabilities. The GPS signals show location points through various times within a day and can be stored to later look at long term trends of herd and animal movement respective to weather conditions and seasonal changes. The visual markings and VHF signal help biologists to then later relocate the tagged induvial using telemetry and pick them out from other animals in the herd. This provides researchers with



the capabilities to monitor the health and lamb productivity of individual sheep, week after week. These surveys, referred to as lamb recruitment surveys, are crucial to monitoring the spread of Movi infection in each population. Once infected, lambs usually do not live very long, therefore if a biologist can keep track of these animals, they can notice a sudden spike in deaths possibly indicating an infection. Because of the capability for monitoring disease outbreak and health of the population, these captures are crucial to the management of sheep in Nevada. Through each capture event I am able learn more and more as I continually build on my previous experience and apply my in class learning regarding population metrics and animal handling. Once again, being that my last project in the previous summer was also a sheep capture, I cannot think of a better way to end such a fun and meaningful summer.

As my summer has now comes to a close, I am filled with nothing but sweet memories of my days in the desert this summer. Many peers that exist in my world of higher education still seem so unsure about what it is they want to do with their career in their future lives. As for me, I am so thankful to have experiences and learning opportunities such as this that continually remind me that I know exactly how I wish to spend the rest of my life. Where I'll end up or how I might get there is still very much unknown, but one thing I am certain of is my passion and desire for wildlife management and conservation. I am endlessly thankful to NDOW, NBU, and the Nevada record book, not only for providing me with such a direct vector for learning, but also for continuing to fight and advocate for Nevada's wildlife. Highlighting the major events in my summer is already difficult to fit in a report such as this, therefore it would be near impossible to squeeze in all the little details that happened along the way. From splitting my head open with a t post pounder, to getting the truck stuck, or through long hikes filled with unsuspecting rattlesnakes, I enjoyed every second of what has been an impactful and meaningful tenure.