

**Xixi Qin**  
**Charlie Blumenstein Stewardship Internship Final Report**  
**Carpenter Ranch Preserve, Hayden, Colorado**  
**Summer 2022**

This summer I had the honor to work for the Nature Conservancy (TNC) as a Charlie Blumenstein Intern on Carpenter Ranch. I partook in several projects including leading volunteer groups, collecting water data, participating in local environmental workshops, as well as 2 individual projects. I worked closely with the ranch manager, Matt Ross, throughout the summer.

I am pursuing a degree in environmental science and a minor in education. My interests lie in science communication and environmental education. I was able to pursue my interests in a lot of different ways throughout the summer and really witness how my interests are practiced in real work.

### **Volunteer Groups**

Every other week, I worked with the Rocky Mountain Youth Corps volunteers for about 3 hours in doing volunteer work for Carpenter Ranch. Some work we did were weeding gardens and repainting signs and benches on the ranch. Every time, a different group of 4 to 8 middle school-age students and 2 leaders comes. I got to do a little education in talking with the kids when there's a teaching opportunity. For example, we talked about how to identify weeds, values associated with pulling out weeds as weeds are plants too, and general information about TNC and the landscape surrounding Carpenter Ranch. Some of these teachings happened with the big group, but a lot of these happened over 1-on-1 conversations when a teaching opportunity presented itself.

Working with these volunteer groups also exercised my ability to quickly connect with visitors and gave me more exposure in working with students of middle school age, an age I would want to work with after graduation. This experience was also helpful with developing leadership skills by giving me the ability to lead small groups in completing tasks.

### **Data Collection**

Throughout the summer, I was able to get involved in several monitoring projects happening on and around the ranch. I also did individual data collection regarding ditch flume water flows. I learned more about conservation monitoring of the environment, plants, and animals, as well as career opportunities associated with conservation monitoring. I was able to talk with professionals and local landowners in this area and learn about their journey of working for nonprofits and government promoting environmental conservation.

I participated in monitoring on different ranch properties alongside another TNC employee. I assisted with 4 properties and helped input data into ArcGIS Collector. Here I learned how to communicate with ranch owners that have their properties under conservation easement. It was interesting to see how these ranch owners were happy to show us around their properties and for us to do the monitoring. This shows how effective TNC's approach of being a part of the ranching community and leading by example is towards building relationships with local

ranchers and thus promoting positive mindsets towards conservation. I was also able to practice my public communication skills with the local landowners.

Another thing I participated in is the monitoring of yellow-billed cuckoos, a threatened bird species that historically nest in the riparian area of Carpenter Ranch. Here I worked with a wildlife biologist and ecologist from the Colorado Parks and Wildlife to look for the yellow-billed cuckoo in the riparian forest. We played calls and listened for the birds. I also learned the phenology of yellow-billed cuckoos in order to spot them with sight. When we were doing the survey, I talked to the biologist about how monitoring can work on a big scale when it comes to wildlife as they usually distribute to a larger extent. I learned about how to recruit the public into conservation projects as well as bird monitoring techniques.

I also worked closely with Jennifer Wellman, a watershed hydrologist, and helped her collect water user data by regularly checking the ditch flumes that irrigate the surrounding ranch. This data contributes to the understanding of water user behavior and water usage of the Yampa River. It provided more monitoring data for a changing Yampa River to understand how to preserve and conserve the river and the environment around it. Overall, this experience helped me understand the complexity of work in monitoring.

## **Water Conferences**

I attended a water training workshop that happened onsite at Carpenter Ranch as well as the Maybell ditches modification demonstration. In both of these experiences, I had the opportunity to talk to people that work in the environmental field, especially a people in the water conservation field. I talked with many water experts and learned about different job opportunities for water conservation in Colorado. I also learned how TNC communicates its conservation projects with local stakeholders and local government. This expands my knowledge of conservation strategies focusing on water conservation and gave me a networking opportunity to develop professionally.

In the 2-day water training workshop, we looked at the Williams Ditch on Carpenter Ranch and a tributary of the Yampa River. This workshop talked about methods for assessing river health, understanding water user behavior, as well as assessing river flows for wildlife when it comes to writing river management plans. In this conference, I learned about the complexity of conservation work and the magnitude of planning when it comes to conservation. I also learned about different skills in water conservation and assessment.

During the Maybell Ditch visit, I looked at the Maybell Ditch renovation project alongside TNC employees, their project management team, local stakeholders, and local government members. This further shows the complexity of conservation projects by hearing different sides and their concerns. I was also able to see the different parties that play into problem-solving in order to meet these demands. This really shows the importance of communication and collaboration in order to solve conservation problems that benefit multiple partners across disciplines.

## **Personal Projects**

I worked on 2 personal projects throughout the summer. The smaller project was interviewing a researcher that studies bat populations across the US with Carpenter Ranch as one of their sites. The bigger project was looking back at educational events and materials that Carpenter Ranch used to engage in and coming up with a new education program proposal for Carpenter Ranch.

For the bat researcher interview at Carpenter Ranch, I was able to participate in the bat capturing and tagging alongside the interview. I prepped the interview questions, interviewed the researcher, and edited the video. Through this process, I had to think about what I wanted to communicate with the public and cater the interview questions towards the message I wanted to send. This helped me practice science communication and education.

I also wrote a summer education program proposal for Carpenter Ranch. The proposal outlined a summer curriculum consisting of 4 separate week-long programs. The goal of the education program is for local students to learn about the physical and cultural environment they live in. I came up with learning goals and ways to achieve the goals. I also observed local students from volunteer groups and communicated with local environmental people about their thoughts of environmental education that fits with the ranch. More details can be found in the attached proposal.

## **Gratitude**

I would like to thank the Blumenstein family and Charlie Blumenstein Internship steering committee for sponsoring my opportunity to gain exposure to the real-world work that is more relevant than ever. I gained a lot of experience and knowledge throughout the summer. This could not have happened without your effort and involvement.

I would also like to thank Matt Ross, Sally Ross, Anya Byers, and Jennifer Wellman for their support throughout the summer.