

Balancing Botanical Integrity and Diversity with Land Use on Public Lands

Jon Barbour

Humboldt State University

Summer 2019

Heidi Guenther, Forest Botanist, USDA Forest Service

8/1/2019

Table of Contents

Acknowledgements.....	2
Executive Summary.....	3
Project Objectives.....	3
Project Approach.....	4,5
Project Outcomes.....	6
Conclusion.....	6
Appendices.....	7-10

Acknowledgements

This project was supported by Hispanic-Serving Institutions Education Program Grant no. 2015-38422-24058 from the USDA National Institute of Food and Agriculture. My appreciation goes to Forest Botanist Heidi Guenther, Ecosystems Staff Officer Gregory Moon, the Archaeology Department and the WRPI Internship Staff.

Executive Summary

At the Forest Service, there is a shared goal to sustain the health, diversity, and productivity of the nation's forests and grasslands to meet the needs of present and future generations. Going into our projects at Modoc National Forest, our objective was geared towards obtaining as much information as we could to help benefit the future of our public forest. The goal within the Botany Department this summer was to finish two large land use projects that require natural resource surveys and documentation under the National Environmental Policy Act (NEPA). We began our botanical surveys at the Beaver Dam Livestock Grazing Allotment located in the Devil's Garden Ranger District of the Modoc National Forest. Once we finished the allotments, we moved over to the Fandango Forest Health Project in the Warner Mountain Ranger District, which will implement forest health improvement and fuels reduction activities while utilizing standard timber harvesting operations and prescribed burning. At this location, we again performed botanical surveys for NEPA compliance but within a completely different landscape than what we had previously surveyed for the grazing allotment.

Project Objectives

Our goal as field botanists is to ensure that we have knowledge of the general vegetative communities across the 1.6 million acres managed by the Modoc National Forest, as well as the specific locations of both rare plants and noxious weeds. With this information, we can help make decisions to better our land and improve natural ecosystems. Specific skills needed to accomplish these tasks include the following: ability to hike 6-10 miles a day; carry necessary equipment; identify plant species; document rare plant species and noxious weed occurrences when encountered (both on handheld Global Positioning Systems [GPS] devices and/or tablets and datasheets); and navigate to specific locations using both maps and GPS/tablet devices.

Along with botany, I also received very practical experience with archaeology, forestry,

hydrology, rangeland and the wild horse program. Going into this internship, I was expecting to obtain useful field experience along with leadership and team-oriented skills. I also approached this summer with the goal to achieve the necessary experience to help build up my potential for a career within the Forest Service.

Project Approach

As we went into the field to complete our botanical surveys, there was a list of specific plants to look out for. In the 500-acre Beaver Dam Allotment and 3,500-acre Fandango Forest Health Project, we were mostly looking for noxious plant species such as Dyer's woad (*Isatis tinctoria*) and various thistles. On a tablet, we were given pre-loaded site maps from our supervisor to identify the areas to be surveyed. These site maps were very useful to help keep a record of what we had already surveyed and what we still needed to cover, and on the tablet we could easily record our tracks with an application called Avenza Maps. To identify plants, we studied the species that were expected to be seen in the sites and watched out for them as we hiked. When a noxious weed was discovered, it was recorded on both our tablet and on a Noxious Weed Survey Form. These forms were to be filled out with information that included: GPS location; size of weed occurrence; number of plants; elevation; slope; aspect; and a detailed habitat description. The purpose of these forms is to enter the collected data into databases that can show the progress of noxious weed spread and identify the severity of such infestations. Another responsibility that we had as the botany field crew was to help control the spread of noxious weeds by physically removing them. The techniques used were to simply dig or pull the plants out of the ground and remove them from the area to eliminate the chance of new seed germination.

In addition to working in the Botany Department, I received some significant experience with other departments. We worked with the Archaeology Department for about 10 days. The archaeology field crew was also performing field surveys similar to our botany surveys, but rather than identifying plants we were identifying historic and Native

American sites using basic surveying techniques.

With hydrology, we assisted with post-logging operation analyses to monitor water sources for any disturbances that required attention. This involved working directly with the State of California's Water Board.

The Modoc National Forest has the largest wild horse program within the entire Forest Service. We were able to help out at the wild horse corrals with the horses that were recently gathered by feeding, watering, and moving the horses around the corrals in order for them to be evaluated and tagged for their pre-adoption processing. The Modoc National Forest has an annual wild horse roundup in order to conserve and protect both the wild horses that roam and graze within its designated 258,000-acre wild horse territory but also the natural resources and other land use operations that occur within this area. Once the horses are corralled and thoroughly checked for health issues, they are then put up for adoption.

The Forestry Department allowed us to visit an active timber sale, where we observed and asked many questions about the operation. These sites were at the location where timber was being cut, put into landings, loaded onto log trucks and chipped into chip trucks.

Project Outcomes

Going into our botany surveys, I was surprised by the amount of Dyer's woad that we were finding. This is a noxious weed that produces many seeds and benefits from the lack of competition caused by ground disturbance. Our findings can now help make decisions toward removal and control of this noxious weed. The amount of other noxious weeds such as Canada thistle (*Cirsium arvense*) and Mediterranean sage (*Salvia aethiopsis*) was expected and our efforts to remove them will help control its spread.

Conclusion

The summer of 2019 was a very memorable experience for me. With this being my first job in the natural resource field, I gained much needed experience to get me prepared for a career. This internship also gave me the confidence to work in a team and accomplish goals set by our supervisors. Along with the work experience, I am now certain that a profession with the Forest Service, or other similar agencies, will be the desired career path for me. I am very grateful for this opportunity and hope to gain much more experience in the field of natural resource and be a part of a movement that aims to preserve our beautiful and shared public lands. The Forest Service's motto of "caring for the land and serving people" is a simple but profound idea that I can now stand behind.

Appendices

Appendix 1: View from Beaver Dam Allotment during botany surveys



Appendix 2: View from Bald Mountain, Warner Mountains



Appendix 3: Logging equipment at chipping operation



Appendix 4: Observing artifacts with the archaeology crew leader

