

I spent my summer as an intern for the Valles Caldera National Preserve (VCNP) in the Jemez Mountains of Northern New Mexico. The Preserve is owned by the federal government and is operated predominantly for the purposes of scientific research that pertains to conservation as well as providing lands for recreation, fishing, and hunting, and use by ranchers. On the front of scientific research the VCNP employs a team of biological technicians, who specialize in the fields of botany, wildlife, and entomology, and who conduct studies in the field and lab to monitor biodiversity and ecosystem health of the preserve.

I was placed, with my classmate Eileen Schaeffer, as an intern in the entomology division based on prior experience I had gained in studying families of the order Lepidoptera, which are more commonly known as butterflies and moths. Our responsibilities included carrying out the ongoing arthropod monitoring throughout the burned and unburned areas of the preserve and establishing the first data collection periods for moth trapping. We set our goals with our supervisor at the beginning of the summer and were encouraged to strive to write a publishable paper on the results of the moth sampling. Our time was pretty equally divided between time spent in the field setting and retrieving three types of traps in 36 locations and working to properly record data collection in the lab as well as to curate our additions to the reference collection of moth and butterfly specimens.



Blacklight trap, malaise trap, and pitfall traps for collecting arthropods

In the field we had the responsibilities of managing time, equipment, and tricky logistics such as impassable roads. We were allowed to drive a vehicle owned by the VCNP and had to make arrangements for each day we wished to use the vehicle. On the roughly 90,000 acre preserve, it can take

an entire day to drive to all of the sites in various parts of the preserve, and we often had constraints of time-dependent traps. These factors limited our flexibility and forced us to be prepared when going out into the field not only to account for everything that needed to be done, but to do so in a safe manner. Sometimes we could not do all that needed, so we made up for the missing data points by rescheduling field time. We learned to set blacklight traps safely using potassium cyanide as a killing agent, and followed the Material Safety Data Sheet (MSDS) regulations for application and disposal. There were some initial difficulties in using the potassium cyanide and had to consult Dr. John Brown from the USDA to solve the issues.

The greatest challenge we faced was the daunting task to pin and spread the thousands of moths, distinguish one species from another, and identify them to the best of our ability or send them to the USDA folks for ID assistance. This proved to have a steep learning curve and our first few trials were arduous and frustrating.

Soon, however, we began to have the eye and steady hand to properly prepare the specimens.

We are continuing this work here at Sewanee in order to complete the study and compile enough data to write a paper that can be submitted to a scientific journal.

Outside of our specific internship responsibilities, we lent assistance to the wildlife technicians in the field and had a great deal of interaction with botanists, archaeologists, and interpreters, all of whom collaborate to create knowledge about the natural history of the preserve both for the sake of academia and the public. We also took advantage of the opportunity to sit in on the defense of a master's thesis



Learning to pin moths at the Smithsonian Institution

pertaining to the habitat of wild turkeys and an informative presentation on the Las Conchas wildfire that burned much of the preserve last summer.

Though I was not funded by the VCNP, I gained insight into the experience of a government employee and learned to operate in the complex environment that is office/lab/living space all in one while



The Valles Caldera National Preserve

being extremely isolated from the “outside world” (not too much different from Sewanee!) This experience taught me to carry myself in a semi-professional manner, though we were not required to follow the dress code and other expectations of employees.

Because a lot of the work I had could be completed on my own time, I became better at scheduling. I quickly learned how easy it is to get caught up in work and spend late nights in the lab! Eileen and I contributed with our positive attitudes toward work that seemed to cheer other people around us. We are grateful to the VCNP staff for also being extremely enthusiastic and willing to educate us. We left behind a much-improved reference collection of Lepidoptera that future scientists and visitors to the Preserve can view. We were trained by members of the Systematic Laboratory of Entomology at the Smithsonian Institution to properly prepare these specimens and the ones that we left behind will be better preserved than the ones that existed upon our arrival. Being the first interns from Sewanee that the VCNP has had, we are confident we left a good impression and that the Preserve will welcome future interns.