

SEF Final Report

Participating in this research project has overall been a very beneficial experience for me. I have learned many different lab skills and gained relevant experience for my future endeavors, while also learning personal discipline.

Overview

The project I was working on is centered on an island called Midway Atoll National Wildlife Refuge. It is an isolated island in the Pacific Ocean, northwest of the Hawaiian islands.

Generally, the purpose of this project is to observe the effects that the invasive mice present on the island are having on the ecosystem. Specifically, I worked on invertebrate monitoring for most of the summer. We monitor the invertebrate community by pitfall trap sampling; then, we sort each sample to order. I also worked on DNA metabarcoding preliminary work. DNA metabarcoding will be used to examine the diet of mice so that we can better assess the direct impact they are having on the ecosystem.

My tasks this summer were to sort invertebrate samples that had come from Midway, and to help out with other tasks as needed, such as DNA preparation work. My goal was to sort through all of the older samples in the lab that had been delivered as early as last fall, which we did end up accomplishing. We made a great progress in that portion of the project, but it is still an ongoing effort and will continue through the fall and probably next spring. Samples are being delivered from Midway every few months, so it is important that we keep up with that work. Additionally, I got to help out with some DNA work. I had to prepare samples by extracting invertebrate specimens from already sorted samples and place them in a sterile test tube. Then, we used liquid nitrogen to freeze them and crush them up into a fine powder. This makes it easier to extract the

DNA from these specimens. We followed the same procedure with plant specimens from the island as well. I was helping to prepare these samples for a trial run to see if we had the procedure correct, and we are currently waiting on the results of those trials, which should be ready in about four weeks. I will be continuing to help out with this portion of the project in the fall as well, after we get the results.

Academic Experience

Since I am planning on attending graduate school in the future, it is beneficial to participate in research projects during undergraduate studies if possible. It is a privileged experience that I am grateful for. Participating in research projects now will give me a better understanding of what graduate school will be like, and give me a competitive edge for applications. I learned that in graduate school, I will be creating my own project most likely working directly under a professor and designing experiments to answer my own questions. I am also learning various lab procedures that will help me to be successful later on in classes. Having this research experience will make a more competitive applicant for graduate school programs, and I think that professors would be more willing to let me work with them since I have some prior experience.

I also learned a lot throughout this project about ecological studies, and I have never taken an ecology class in college. I believe that hands on learning experience can be even more beneficial than classroom learning in some circumstances, or better yet, an excellent supplement to classroom learning. Now, I am interested in taking ecology classes later in my undergraduate studies.

Career Growth

Participating in research as an undergraduate is a valuable experience that will stand out on my resume for when I apply for future jobs or internships. Furthermore, this project has inspired me to think critically about what I would like to pursue in my later academics. When I started this project, I intended on attending pharmacy school. I learned a lot in this project, and I had never experienced work with ecology beforehand, and I figured out that I really enjoy it. I decided not to pursue pharmacy school anymore. I am still exploring my options, but I am interested in continuing to work in ecology.

Personal Discipline

Throughout the eight weeks that I worked on this project this summer, I learned that frequently, research projects are not all glamorous science. It is a lot of tedious work that requires immense concentration. While not always the most interesting, work like this is still very important to the scientific process and research projects as a whole. The majority of the summer, I was working on sorting samples. It was not the most intellectually stimulating work I've done; however, it taught me to be disciplined and focused. It is very precise work that requires a good attention span and organization skills. Any mistake can ruin data that is important to the entire project. Overall, I think that not only did this project teach me lab procedures, it granted me some personal growth, and I am grateful for the experience regardless.