

This summer, I spent five weeks in the Central Plateau of Haiti doing research and continuing Sewanee's aid project, Zanmi Caf  (Partners in Coffee). This multifaceted project was created by Dr. Deborah McGrath in an attempt to ease environmental pressure caused by deforestation and Haitian agriculture. In addition, McGrath has spent eight years building relationships with Haitian farmers and developing incentives for these farmers to stop cutting down trees in the country. Zanmi Agrikol (Partners in Agriculture) and Sewanee have been working together since 2011 to develop a program to pay Haitian farmers for ecosystem services present on their farms, primarily carbon sequestration. Large fruit trees, such as mango and avocado, are present on many Haitian farms and absorb the largest amount of atmospheric carbon dioxide. As an incentive for the farmers to keep these trees, Sewanee has helped plant coffee seedlings, which require large amounts of shade. The farmers can sell these carbon offsets as well as gain additional income from coffee and fruit sales. All of this is meant to ameliorate deforestation and provide long-term income to the villages we were working in. Hopefully the project will include more villages in the future.

My responsibilities for the project included continuing past research done on the socioeconomic status of the farmers in the villages we were researching, Bois Joli and Blanchard. I also worked with Geanina Fripp, Duncan Pierce, Elizabeth Segal, and four Haitian students to explore the current health of the Bois Joli farms. We took a baseline biodiversity survey of birds and insects, with a focus on butterflies, ants, and ground beetles. These groups of organisms were selected because they affect the health of crops, primarily by feeding on pests.

The first few weeks were spent preparing our equipment for our biodiversity survey and distributing about 13,000 coffee seedlings, along with other fruit tree seedlings, to the farmers.

After all the seedlings were planted, we began our research. At each farm, we verified the number and placement of all the seedlings, and selected eight farms to do our survey on. Our methodology included setting out eight beetle traps, ten ant traps, and three butterfly traps along a fifty meter transect across the farm. All the traps, with the exception of the ant traps, were left for a period of two days and collected. After the collection, all the captured insects were recorded and identified. The ant traps had to be recorded every 15 minutes for an hour-long period. In addition to the three butterfly traps, we made nets and walked along the transect four times, running up and down it, catching any butterflies we were able to. To collect bird data, we stood in the middle of the transect and recorded all birds that were seen or heard. While we were doing all of this, we were training four Haitian students on how to collect data so they could continue working in Bios Joli after we left. Their collaboration with us will be their final project and will allow them to graduate their school, CFFL, with an honorary degree from Sewanee. The purpose of surveying these groups of organisms as soon as the coffee was planted is to see if there is a change in biodiversity over time. Hopefully we will see an increase in biodiversity, which would indicate improved health of these agroecosystems. Increased biodiversity will also improve crop yield and health, which could potentially lead to more income for the farmers.

I was beside myself when I found out I was approved for this internship. I plan on going to graduate school for invertebrate biology and work in conservation or agricultural work focusing on insects, so this project was the ideal way to build experience in those fields. Not only was it a learning experience for my chosen career path, but I also felt like I was making a difference in many people's lives. Haiti is still in poor condition after the 2010 earthquake, and is one of the poorest countries in the western hemisphere. While there is no way to affect everyone in the country with our project, we still helped change the lives of about forty families for the

better. Seeing the look on the farmers' faces when we arrived for the first time was an uplifting experience. They were thrilled to see us and were eager to work with us again. As the project continues, I hope we will be able to include more villages so we can reach out to more people in need.

All in all, this internship was one of the greatest experiences of my life. It was eye-opening seeing such poverty and suffering in one place, as it was like nothing I had ever seen before, but it was also a very hopeful experience. Everyone we met was happy to meet and talk to us, they continue to live and thrive despite the poor state much of the country is in, and they never lose hope. Beyond gaining invaluable experience that will help me gain admission into graduate school and work to stop deforestation, I feel I have grown more from just five weeks in Haiti than I have from any other opportunity. Along with the fantastic work we got to do, it was just an amazing way to spend part of my summer. Nothing beats climbing a tree and pulling three or four huge mangoes down for everyone to eat.

As I was flying down to Haiti, a lady who was on a mission trip told me a little about the country and said "Haiti will break your heart and won't give all the pieces back." I now know what she meant, and I cannot wait to continue working with Dr. McGrath to make a difference.