

This summer I continued working with Professor Deborah McGrath and Zanmi Kafe (Partners in Coffee) on the agroforestry project in the mountainous region of the Central Plateau in Haiti. Through agroforestry, Zanmi Kafe, hopes to improve environmental conditions and bring economic opportunities to improve the livelihoods of the families in the village of Bois Jolie. Many of the families rely on charcoal as a fuel for cooking as well as a primary source of income. Due to this demand for charcoal, less than 2% of Haiti is still forested today.

This agroforestry project implements Payments for Ecosystem Services by using carbon payments as a way to encourage the care and maintenance of large, shade, carbon sequestering trees such as mango, sed, and acajou. In addition to the carbon payments, farmers have chosen to receive coffee trees as a primary cash crop in their agroforests. Coffee requires shade to grow and the shade trees planted alongside thereby provide protection for the coffee while also sequestering carbon. The families will continue receiving carbon payments for the next five years after which time the coffee will begin producing providing an additional source of income.

We have built a strong relationship in Bois Jolie by returning every spring and summer break. In the spring of 2013, a nursery was established and filled with coffee, sed, mango, and acajou seedlings. Last summer seedlings were distributed to 45 families who volunteered to be part of the project. In the spring of 2015, Sewanee

students returned to evaluate the health of the coffee. This data helped guide the summer 2015 research. During spring break, students discovered scale, a harmful insect to coffee plants, and rust, a fungus that damages coffee leaves. This finding showed us the importance of understanding the biodiversity present in order to implement biocontrol.

Last summer we began a biodiversity study to attain baseline biodiversity data. Our most successful study was the ant study, and this year we chose to focus on it and expand it, as ants can be predators of certain coffee pests such as scale while others are known to have a mutualistic relationship with coffee pests. In order to expand our study, we used different baits such as peanut butter, honey, tuna, and potted meat that would attract different types of ants. We also had pitfall traps without any bait inside them in order to capture ants as well as other organisms, as interactions are very important in healthy ecosystems. Understanding the ants present on the farms as well as the interactions, is critical in maintaining the health and survival of the coffee.

In addition to continuing the ant study, this year we began a photosynthesis study as we noticed that rust was already attacking the leaves of the coffee plants. The photosynthesis study was focused on investigating the effects of rust on the rate of photosynthesis as well as understanding the optimal light level at which the coffee plants have the best rate of photosynthesis. This data will allow us to

determine the best method of treating rust in order to prevent it from spreading to other coffee trees within the farm.

This year we also continued working with our agronomy students from the Centre de Formacion Fritz Lafontant (CFFL). CFFL is a vocational school in Corportant, Haiti where students can study agronomy or carpentry. Four agronomy students, Francique, Rose Laure, Watson, and Wakenfort, began working with us last summer and continued visiting Bois Jolie after our departure to continue the biodiversity studies. These students will be graduating from CFFL this year and part of the graduation requirement is a thesis based on the biodiversity studies. The students have been working on the thesis under the guidance of Professor Deborah McGrath and this summer we helped them create a poster to present their studies and findings to their peers.

To wrap up my experience in Haiti, I would call it a summer of friendships. These friendships were formed through informal interactions with the students and the farmers in the evenings that we spent the night in Bois Jolie. We all laughed together as we played Go Fish for hours at a time. Each week, more and more people joined in the game and by the end, our farmers were waiting for us to arrive to play Go Fish. Go Fish brought all of us together. It is experiences and friendships such as these that make this work so meaningful and rewarding.