

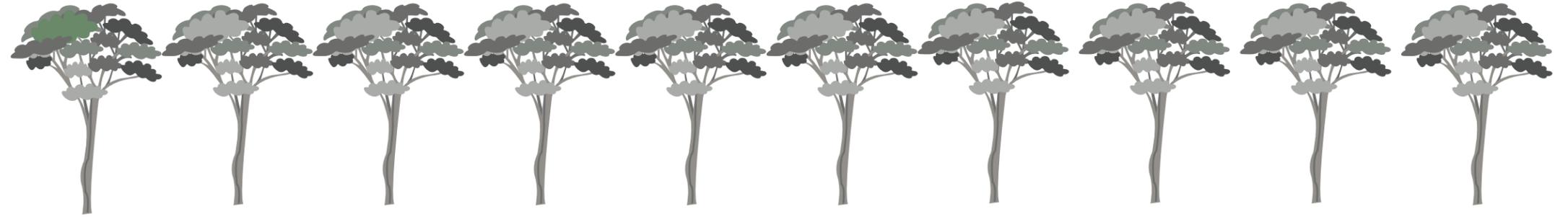


WHAT'S BUGGING ETHIOPIAN FARMERS?

by Patrick McKenzie

Photos by Patrick McKenzie

Afromontane Forest 2017



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Over this last summer, I participated in a Research Experience for Undergraduates (REU) at Colby College in Maine. Essentially, REU's are prestigious, paid summer research jobs at other universities that give you the chance to work with students and professors you wouldn't otherwise meet. Last Fall, the Office of Fellowships and Scholar Programs recommended I seek out an REU because I was interested in research topics that didn't quite match any professor at USC. I applied en masse to a good 15 different programs that interested me with various combinations of essays and letters of recommendation. As the spring semester passed, I hadn't heard back from any of them, and I was getting a little bummed out. Then, as I sat on a plane preparing to depart to Cuba for spring break, I got an email of acceptance from Travis Reynolds about an REU studying sacred forests in Ethiopia. I took this as a sign of fate and slipped my acceptance email out as the plane lifted off the ground, and my summer fate was sealed.

Although I was originally supposed to be in Ethiopia for part of the summer doing on-the-ground ecology research, civil unrest in the country changed those plans. Instead, the ten of us in the REU created our own distinct projects

that were feasible from Waterville, Maine. We had a good mix of social science and natural science projects, with mine falling somewhere between the two. Continuing off a project from the previous year, I decided to study the impacts of forest cover on pest damage of surrounding agriculture in the Amhara region of Ethiopia. Over time, that project narrowed to focus only on maize, teff, and horse beans: three of the most important crops in the region. My day to day work generally involved a mixture of GIS (basically fancy Google Earth) and statistics, combining satellite imagery and household survey data to generalize results. The most striking difference between the research I do at USC and my REU was that my project in the REU was all mine; I created the project, decided my priorities, and did all of the work.

I was also struck by the potential impact of my project. I had gone from studying the evolution of algae (an interesting but not particularly useful subject) to doing research with the real, concrete potential to save lives. With 32% of its population undernourished, Ethiopia suffers from serious food insecurity, and pest damage is an important contributor to that insecurity. Agriculture is also a centerpiece of the Ethiopian economy, accounting for 35.8% of the country's

GDP. Further, only 4.2% of the country today is Afromontane forest, reduced from 40% in the early 1900s. With native forests quickly dwindling and successful agriculture so essential, my research is particularly valuable. Through my research, I have found differential impacts of forest cover on pest damage by crop type, meaning that maize planted near forests suffers more than teff or horse beans. This allows prescriptive measures to be taken by educating farmers on what crops are best to plant near the forests, a task that can be taken on by our partners in the TREE Foundation.

My favorite moment was compiling and presenting my research at the California Academy of Sciences. On the one hand, the free trip to San Francisco for the week was obviously fun. However, it was the chance to explain the results and implications of my research to both scientists and families that really made the experience meaningful for me. It was an incredible chance to talk on an equal level with actual scientists and pique the interests of children in science and conservation, both

of which were satisfying in different ways. In terms of what I learned, I really didn't know anything about Ethiopia before I started my REU. Thankfully, during my program we received supplemental classes on the language, history, and culture of Ethiopia. Now I know it is an amazing place, and it is one of the destinations on my travel bucket list.

When I found out I wasn't going to Ethiopia, I was expecting to have to work a boring desk job for summer. However, what I found was meaningful, impactful work that was distinctly mine and that has the potential to make a difference on a global scale. Through my REU, I made incredible friends, was compensated for my research, and got to explore the Northeastern U.S., which I had never even visited before. All in all, I strongly encourage my fellow USC students to seek out an REU of their own for the chance to spend a summer researching something that is not only of interest to them, but could potentially have profound global impacts.

WITH NATIVE FORESTS QUICKLY DWINDLING AND SUCCESSFUL AGRICULTURE SO ESSENTIAL, MY RESEARCH IS PARTICULARLY VALUABLE.

ETHIOPIA'S 2017 GDP COMPOSITION

