

Yesenia Valverde  
Tinker Report  
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**Project title:** Enriching the Agricultural Matrix: Farmer engagement in biological corridor projects in Costa Rica

With the generous support from Berkeley's Center for Latin American Studies and a Tinker Field Research Grant, I was fortunate to travel to San Jose, Costa Rica during the summer of 2021 to begin my initial dissertation research. In the following report, I will provide a short overview of the plans for my PhD dissertation, this past summer's fieldwork in Costa Rica, and next steps.

My proposed dissertation research explores how an agroecological understanding of production landscapes can be leveraged to center farmer-mediated conservation within forest landscape restoration programs in Central America. My long-term research goals are at the intersection between rural livelihoods and environmental conservation, taking a social justice approach to land sovereignty and traditional forms of agriculture. For my dissertation, I will be focusing on agroforestry systems--characterized by the management of trees alongside crop and/or livestock production—and their potential to serve as both an alternative to intensive agriculture and an approach to cost-effective restoration.

I initially approached this research endeavor with the intent to focus on Costa Rica and its extensive network of regional biological corridor projects. Recent studies carried out in the country has highlighted the opportunity for locally relevant improvements to sustainable agriculture by focusing on farmers' management of dispersed trees and live fences. Drawing from a combination of participatory research, field ecology studies, and remote spatial analyses, I set out to survey smallholder farmers' agroforestry practices and formulate hypotheses on how to harness agroecological synergies to directly strengthen farmer knowledge and capacity with crucial co-benefits for biodiversity conservation.

I traveled in late June, amidst the COVID-19 pandemic, to San Jose, Costa Rica. It felt especially crucial for me to make all possible efforts to ensure the health and safety of both myself and of all the individuals I would be interacting with during my field season. I therefore chose to reside in the semi-remote region of Jericó of Desamparados, avoiding urban centers as much as possible and restricting my meetings with researchers at the Tropical Agriculture Research and Higher Education Center (CATIE) to video calls. Notably, I met with Dr. Alejandra Martinez-Salinas, who leads the "Livestock and Environmental Management" (GAMMA) Program at CATIE and focuses on biodiversity in agricultural landscapes. A fruitful conversation with her led to an introduction to Dr. Ibrahim, director of CATIE, and a later meeting with Dr. Bryan Finegan, leader of CATIE's "Forests and Biodiversity in Productive Landscapes" unit. Dr. Finegan and I discussed the country's recent conservation initiatives and the challenges they are already facing.

In addition to meeting with researchers, I sought out farmers in the region that would be willing to talk with me about their land management practices and views on conservation agriculture. By the end of my time in Costa Rica, I was able to meet and tour the land of several different farmers, each of whom generously welcomed me into their homes. I first met with Adolfo, a rancher in Llano Bonito of Acosta with about fifteen hectares of land who makes most of his income selling cows, though also produces sugarcane, coffee, and citrus to share with family and friends. He sent me home with plenty of gifts that day. Adolfo showed me around his land, explaining many of the decisions that go into running

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it. Fortunately, we were accompanied by one of his workers, who was able to name many of the species of trees that lined the pastures.

In San Cristobal, I met Jorge, who, with his brother, inherited their family's 100-ha of land and highly successful dairy business. They sell exclusively to the country's largest dairy cooperative, Dos Pinos, and are well-known for supporting the local economy. As a wealthier and more educated landowner, Jorge is of the relatively small proportion of farmers in the country who benefits from the government's Payment for Ecosystem Services (PES) program, in which he is paid annually for conserving a portion of his land as intact forest. This dynamic of differentiated access is well-known to privilege farmers like Jorge, while leaving out others like Adolfo.

I met a relatively young and new farmer, Fabio Andres, who recently purchased his ten hectares and is working to restore soil fertility through goat grazing. In the meantime, he's planted maize and avocados. I met the Zuñiga family in Perez Zeledón that, for generations, had earned their income from livestock, sugarcane, and coffee. Now, however, only the livestock is deemed profitable and even then, is considered risky given a growing pattern of increasingly severe droughts. They, however, are fortunate to have a stream going through their land and have fared better than their neighbors.

Through my conversations with farmers, their families, and local researchers, I was able to deepen my understanding this past summer of the complex social landscape in which environmental and livelihood-related management decisions take place. The experience of being able to visit Costa Rica in-person proved especially productive because it allowed me to realize how essential it would be to find a local collaborator with established interest and motivation for supporting this sort of agroecological research. While I ultimately was not able to meet and build a relationship with farmers in Costa Rica who had such an interest, CATIE researchers encouraged me to pursue a project elsewhere in Central America given the greater social and ecological need. During the proceeding fall semester, I connected with the Association of Livestock and Agro-Silvopastoral Producers of Pedasi (APASPE), located in Panama. I hope to take many of the lessons learned this past summer with me as I begin conversations with Panamanian farmers and continue forward in pursuing this research project. I am very grateful to the Tinker Foundation for its funding award and its support in the early stages of my work.