As an ecosystem ecologist, I study the interplay between tropical forests and their environment in order to inform conservation efforts, enhance agroforestry, and to predict the future of these critical ecosystems in a warming world. I hold a doctorate in Ecology from the University of Minnesota, and previously completed a Licenciatura en Botánica at Universidad de Costa Rica in San José. I am an alumna fellow of the L'Oréal-UNESCO Young Women in Life Sciences program, and in 2013 was awarded a predoctoral fellowship from the Smithsonian Institute and the Committee on Institutional Cooperation (now the Big Ten Academic Alliance). I am currently Communications Coordinator for the Association of Tropical Biology and Conservation (ATBC), and worked previously at the University of Minnesota, the Organization for Tropical Studies, and Duke University (in Costa Rica).

My research focuses on three primary (and related) themes. First, I combine seedling growth experiments and forest field studies to understand how the environment regulates nitrogen fixation. Second, I examine biogeochemical cycling through secondary succession in tropical ecosystems, focusing both on the structure and functional composition of dry and wet forests. Finally, I am developing new analytical methods to measure nitrogen-carbon efficiency during symbiosis, which will improve the representation of carbon-climate feedbacks in tropical ecosystems by Earth System Models.

I am an enthusiastic field scientist and have organized and carried out several field campaigns in the tropical forests of Central America. Drawing upon a series of experiments I conducted at the Área de Conservación Guanacaste in Costa Rica and the Smithsonian Tropical Research Institute in Panama, I demonstrated that legume trees in dry forests do not “ease off” nitrogen fixation even when soil nitrogen levels are high and argued that their inflexibility is the key factor that enables them to cope with the recurring and prolonged nutrient shortages that are inherent to dry tropical forests. My other principal avenue of research has dealt with the biogeography of legume tree species in the tropics. In a 2018 paper appearing in *Nature Ecology and Evolution*, I led an large international group of ecologists in a collaborative effort to map the abundance of legumes across the entire Neotropics and identify the specific functional traits that are favored in distinct successional environments. This work highlighted those particular Neotropical legume species that are best able to facilitate the recovery of soil structure and species diversity in recently disturbed forests. And because the extent of dry tropical forests is projected to expand under warmer and drier future climates, an improved understanding of these species’ adaptations to heat and drought will be extremely relevant to conservation and restoration efforts in Latin America and elsewhere across the tropics.

In addition, I have led or contributed to several initiatives related to conservation and public education in Latin America. I have taught courses in tropical ecology, tropical medicine, and general biology at the university and high-school levels in the United States and Costa Rica. As an instructor and teaching assistant at the Organization for Tropical Studies (a nonprofit consortium of nearly sixty US and Latin American universities), I worked at the La Selva, Palo Verde, and Las Cruces biological stations and introduced students to the fundamentals of plant identification, ethnography of Costa Rica, the strategies and ethics of interview-based research, and other topics. I have substantial experience communicating science to people from diverse backgrounds outside the classroom, garnered mainly during fieldwork in Costa Rica and Panama. Since joining the ATBC as their Communication Coordinator in August 2017, I have led a complete overhaul of the society’s digital presence, increased online engagement, and developed a strategic plan to broaden the scope of its outreach activities.

In the future, I will expand my research on the biogeochemistry and ecology of tropical legumes to better understand the role of these species in the global carbon and nitrogen cycles. If we are able to delimit the carbon investment in symbiotic nitrogen acquisition for tropical legume species, we would be able to incorporate the carbon-nitrogen tradeoff into Earth System Models of tropical biomes, which would in turn help enormously to improve projections of future carbon-climate feedbacks. Ultimately, this line of work will allow me to (i) identify those species that are best suited as candidates for restoration in the tropics, and (ii) understand the mechanisms that explain why legumes are so successful either as native plants or exotic invaders within tropical ecosystems.