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B.S. Institution and Specialization:
Universidad de Costa Rica, Biology

M.S. Institution and Specialization:
University of Florida, Interdisciplinary Ecology



Current Project Description

Restoring abandoned pasture land with native tree species in Costa Rica: An ecophysiological approach to species selection.

The establishment of trees in the successional trajectory of tropical abandoned pastures into forest communities is confronted with several barriers: dispersal, seed predation, unfavorable conditions for germination, and intense competition once they germinate. In order to aid the restoration of abandoned pastures into forested ecosystems, we must overcome some of these barriers through manipulative efforts.

Understanding tree species' early establishment requirements could be used in selecting proper light and competition regimen for the success of restoring pastures after abandonment.

Objective (list them):

- Characterize the light requirements of six native tree species: *Pseudosamanea guachapele* (Fabaceae), *Tabebuia impetiginosa* (Bignoniaceae), *Ceiba pentandra* (Bombacaceae), *Bombacopsis quinatum* (Bombacaceae), *Dalbergia retusa* (Fabaceae), *Tabebuia rosea* (Bignoniaceae) under contrasting light environments and grass competition.
- Determine growth characteristics, biomass partitioning and light response curves of the seedlings.

Brief Description:

I completed my undergraduate studies in Biology at Universidad Latina in Costa Rica, my native country. My undergraduate research, entitled: "Seed germination of two sympatric palm species: *Chamaedorea tepejilote* Liebm. and *Chamaedorea Costaricana* Oerst (Arecaceae) in natural conditions and in a nursery," was the result of a pro bono collaboration with the National Museum

After concluding his undergraduate studies I was awarded a scholarship by the Organization for Tropical Studies (OTS) to participate in the program Research Experiences for Undergraduates (REU) at La Selva Biological Station. The research conducted was entitled: “Do patterns of seed germination and seedling biomass allocation reflect a shade tolerance syndrome in *Gnetum leybodianum* Tul. (GNETACEAE)?.”

At this point in my career, I felt that I needed to develop a broader understanding of environmental processes by incorporating the interdisciplinary dimension. In particular, how humans could help restore the environment. Thus, I decided to pursue a master’s in interdisciplinary ecology at the University of Florida.

As for my future plans, I would like to pursue a PhD in Urban ecology, specifically in restoration. Upon completion of my graduate studies, I plan to return to Costa Rica and continue research in the area of urban restoration ecology, teach courses at local universities, become part of teams performing environmental impact assessments and designing policy reforms, and develop community level activities. With the information generated through my research, I want to create programs that will help to establish a better interpretation of the environmental impacts of urban expansions and to give a solid basis for urban planning and policy design.

Pictures:



Photosynthesis measurements with LICOR LI-6400.



Shade houses for different light treatments.



Field growth measurements of seedlings.