

MWP – Young Researcher Abstract 2026

Project title: Tree diversity effects on the multifunctionality of tropical restoration plantation in a dryer world	
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Abstract: Tropical forest restoration is expanding worldwide as a strategy to mitigate climate change, restore biodiversity, and secure sustainable forest resources. However, many restoration plantations remain vulnerable to increasing climate extremes, threatening their productivity and socio-ecological benefits. My PhD research investigates how tree diversity influences forest multifunctionality (i.e., the simultaneous delivery of multiple ecosystem functions and services) in tropical restoration plantations under increasing climate extremes. Using large-scale restoration experiments combining fertilization management and rainfall exclusion to simulate future drought conditions projected by IPCC scenarios, I evaluate whether diverse tree communities can simultaneously enhance biomass production, carbon storage, ecosystem functioning, ecosystem services, and resilience compared to low-diversity plantations. My research explores whether biodiversity can reconcile climate adaptation, carbon storage, and ecosystem resilience in tropical restoration plantations. This has important implications for public policies and the forest-based industry by avoiding climate-finance strategies that prioritize carbon gains at the expense of biodiversity while identifying synergies between both. Looking ahead, I envision tropical restoration plantations designed to simultaneously deliver timber, carbon sequestration, biodiversity conservation, ecosystem resilience, and nature's contributions to people.	
Key words: Biodiversity-Productivity Relationships, Climate Change, Ecosystem Services, MataDIV, TreeDivNet	