

## **From urban forest to national forest: Adapting iTree Eco and engaging citizen scientists in El Yunque**

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### **ABSTRACT**

Vegetation monitoring and inventory of federal forest lands is typically conducted by agency employees and environmental professionals, yet these efforts can be hindered by limited resources and personnel. At the same time, there is a growing interest on the part of citizens to contribute to data collection efforts, and contemporary forest management practices increasingly call for community involvement and educational outreach activities. This presents an opportunity for enhanced public participation via citizen science projects that generate multiple outcomes. This talk describes the newly-launched El Yunque National Forest Citizen Science Monitoring Project, which is engaging residents of Puerto Rico in the process of monitoring species composition and structure of secondary forest plots distributed around El Yunque. The project showcases a unique partnership consisting of federal, non-profit, academic, and community-based entities collaborating in the monitoring process. We have adapted the i-Tree Eco methodology and database used in urban settings to accommodate the specific management priorities of a national forest, as well as the challenging field conditions that still predominate in Puerto Rico following Hurricane María. Through training workshops and field workdays, we are providing hands-on opportunities for citizens to learn about and experience the forest, while simultaneously adding to the body of knowledge about species composition and forest structure. We also seek to gather local knowledge about the forest's land-use history, to tell an integrated story about people and the land. The data will be incorporated into the Eco database to perform analyses of ecosystem services regarding forest benefits and connection to human communities, and help inform future management decisions.

### **BIOGRAPHY**

**Christopher Nytch** is an ecologist, with interests and experience in the fields of urban, landscape, and forest ecology. He is a project leader with Fundación Amigos de El Yunque and directs the El Yunque National Forest Citizen Science Vegetation Monitoring Project. He is also an affiliated investigator with the Department of Environmental Sciences at the University of Puerto Rico, Río Piedras Campus. Chris

uses interdisciplinary frameworks and tools to investigate vegetation composition, landscape structure, and their influence on functional processes of social-ecological systems, including ecosystem services.

He is likewise an environmental educator and practitioner who collaborates with non-profit, governmental, and academic organizations, and local communities. Through his work, Chris aims to bridge the gap between knowledge generation and its practical application for sustainable resource stewardship, and cultivate regenerative relations between people and place.

**Elvia Meléndez-Ackerman** (BSc, MSc Biology at UPRRP, PhD in Ecology and Evolutionary Biology at UC Irvine) - I am an ecologist by training but an interdisciplinary researcher by experience. I have a broad background in evolutionary-ecology, conservation, ecological responses to climate variability. In more recent years my research has expanded to address sustainability and adaptive capacity issues within the context of urban social-ecological systems. How feedbacks between social and ecological factors influence human wellbeing is a current research interest. I have been working with the San Juan ULTRA Network (Urban long-term research Areas) for over 10 years evaluating the social and ecological factors that influence the vulnerability and adaptive capacity of the city of San Juan. My research group concentrated on the quantity and quality of green infrastructure, provision of ecosystem services and the social and ecological factors that drive variability in the functionality of green spaces in the city. My students and I have been collaborating in projects incorporating the inventory of urban trees in San Juan (Puerto Rico) and Santo Domingo Dominican Republic to evaluate the spatial and temporal variation of tree abundance, diversity and associated services with variation in social and ecological factors in those cities.