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TREE SEEDLING TRAIT OPTIMIZATION AND GROWTH IN RESPONSE TO LOCAL-SCALE SOIL AND LIGHT VARIABILITY

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Study Description

The high taxonomic and functional diversity observed in tropical regions challenges the idea that environments select for a narrow set of functional strategies that represent the best fit for those given conditions and that maximize performance. Using individual-level trait and demographic information of seedling communities paired with local-scale soil nutrient and understory light data, we test a series of hypotheses to explain how plants increase their growth via trait variation in response to environmental gradients. Our results suggest the existence of alternative functional strategies that result in similar growth.

Umaña, M. N., G. Arellano, N. G. Swenson, and J. Zambrano. 2021. Tree Seedling Trait Optimization and Growth in Response to Local-Scale Soil and Light Variability. Bull Ecol Soc Am 102(1):e01837. https://doi.org/10.1002/bes2.1837



Photo 1: Palm-dominated forest in Luquillo, Puerto Rico, USA. Photo credit: María Natalia Umaña.



Photo 2: *Prestoea acuminata* (Willd.) H.E. Moore var. montana (Graham) A.J. Hend. & Galeano is a dominant species in the forest of Luquillo, Puerto Rico. Photo credit: Roxy Cruz de-Hoyos.



Photo 3: *Dacryodes excelsa Vahl*, also known as the tabonuco tree, is one of the most abundant species in the forests of Luquillo, Puerto Rico. Photo credit: Roxy Cruz de-Hoyos.

These photographs illustrate the article "Tree seedling trait optimization and growth in response to local-scale soil and light variability" by María Natalia Umaña, Gabriel Arellano, Nathan G. Swenson, and Jenny Zambrano published in *Ecology*. https://doi.org/10.1002/ecy.3252.