



## **Soil phosphorus and the ecology of lowland tropical forests**

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In this presentation I will explore the extent to which phosphorus influences the productivity, diversity, and distribution of plant species in tropical forests. I will highlight the range of soils that occur in tropical forests and will argue that pedogenesis and associated phosphorus depletion is a primary driver of forest diversity over long timescales. I will draw on data from a regional-scale network of forest dynamics plots in Panama to show that tree species distributions are determined predominantly as a function of dry season intensity and soil phosphorus availability, and will suggest potential mechanistic explanations for this pattern in relation to phosphorus acquisition. Finally, I will present observational and experimental evidence from Panama to show how phosphorus, nitrogen, and potassium, limit plant productivity and microbial communities on strongly-weathered soils in the lowland tropics.