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### **Towards trait-based mortality models for tropical forests?**

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Global change and associated increases in the frequency, duration and/or severity of drought events could fundamentally affect tropical forest dynamics. In this context, modeling the effects of climate warming on tropical forest dynamics poses an urgent scientific challenge. Models of tropical forest dynamics basically involve three ecological processes: recruitment, growth and mortality. In this study, we focused on tree mortality, a key but understudied process.

We developed a model of tree mortality, working at the community scale, using 20-years of forest dynamics data from a neotropical forest in French Guiana. The model computes individual probabilities of tree death using functional traits as covariables in a generalized linear model. The functional traits are proxies of tree ecological strategies and offer furthermore a way to solve problems linked to over-parameterization in highly-diverse communities. Covariables were selected and parameters were estimated in a Bayesian framework

We found that mortality is strongly linked to the ontogenetic status of individual trees, with a typical U-shape curve of death probability with age. We describe a suite of functional traits (e.g. wood density, maximum size etc...) that shape the individual curves.

Our modeling approach offers a promising way to predict mortality in species-rich communities with little parameter inflation, bridging the gap between functional ecology and population demography.