

## **Geomorphic and anthropogenic influences on tropical stream communities**

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**Abstract.** As part of a biocomplexity project in Puerto Rico, we use river and road networks to understand the interactions between stream biota, the physical environment, and human activity. Our goal is to determine how physical and anthropogenic landscape variables influence patterns of aquatic biodiversity in tropical island streams. Species richness often increases with area and decreases at high road densities and urban and agricultural land covers. We sampled fishes and decapods at 25 sites in two watersheds and used a geographic information system (GIS) to generate landscape variables for each site. All fishes, except the goby *Sicydium plumieri*, were limited to areas in the drainage below waterfalls. Conversely, decapod species richness and abundance was higher above waterfalls, which may be a result of predator avoidance. Decapod species richness was significantly lower at sites with predatory fishes. There were no patterns evident between species richness and anthropogenic factors. Because land cover is spatially autocorrelated (i.e. agricultural and urban land covers occur mainly at elevations below the Caribbean National Forest), it is difficult to tease apart some of the human-induced landscape influences. To more adequately do this, we will incorporate other watersheds with much less human impact in the lowlands.