Submitted Abstract

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Abstract

Alpine treeline ecotones are expected to shift uphill due to climate and land-use changes, but not all treelines are shifting. Treeline ecotones in the tropical Andes differ in several ways from alpine treeline ecotones in temperate and boreal climates, for example in the near-absence of snow effects and temperature seasonality and in the very high tree diversity. Very little is known about whether or where Andean treelines are shifting or what can be expected in the future, or what processes control these shifts. It is important to gain more insight here, since the distribution of forest and páramo vegetation, which are delineated by the treeline ecotone, is highly relevant for biodiversity, ecological processes and climatic and hydrological regulation. We are therefore developing a research collaboration to design and test methods to gain a better understanding of the functioning and dynamics of tropical-Andean treelines and to determine similarities and differences compared to treelines in different climate zones. In particular, we aim to develop methods to describe treeline spatial patterns (including vegetation cover, structure and diversity) at different scales, such that the data can be used to understand the ecological processes that shape these patterns and that control treeline dynamics and shifts in tropical-Andean ecosystems. Since the project is young and has not produced concrete results yet, we will present de concepts and ideas behind it, introducing tropical alpine treelines and their particularities and the challenges faced when studying them.