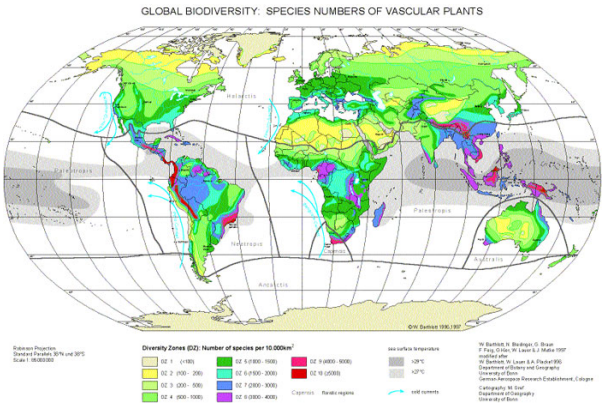
biogeografie
uni bayreuth

Master Thesis

Starting now (Sept. 2015)!

Are mountain passes really higher in the tropics? Global pattern of species' elevational ranges



Background: In 1967 Dan Janzen published a seminal paper with the title "Why mountain passes are higher in the tropics". In this paper he argues that species' elevational ranges increase from the tropics to higher latitudes because of increasing seasonality. In seasonal conditions every species in a given location experiences a wide range of temperatures (winter frost to summer heat), independent of its position along an elevational gradient, while species in the tropics only experience a very narrow range of temperatures owing to the diurnal climate. This relationship is widely accepted in ecological theory because of its importance for global diversity patterns, however its generality has never been adequately tested. By using species-specific elevational distribution data from islands and the continent ranging from the tropics to high latitudes it is possible to assess this relationship. In addition, by comparing islands (generally low seasonality due to oceanic buffering) and continents (high seasonality) we can identify if seasonality is the main driver behind the proposed relationship or if other environmental features are more important.

Research object: A large dataset of species-specific elevational distribution data from islands and the continent worldwide

Research question: Do elevational ranges of plant species increase with latitude? How does seasonality influence this relationship?

Your job: It's your job to:

1. Develop a theoretical framework based on Janzen's assumptions
2. Acquire further species-specific elevational data (esp. for continental mountains)
3. Conduct a macroecological analysis (preferentially in R)
4. Assess how this relationship might influence global diversity patterns

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Masterarbeit auch auf Deutsch möglich!