Understanding biodiversity responses to environmental changes using Equilibrium Theory of Biodiversity Dynamics

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Résumé

Understanding the causes of biodiversity variation on Earth is crucial, especially given the rapid environmental changes we face today. A consensus exists that biodiversity is primarily limited by energy availability. However, significant gaps persist in understanding the temporal dynamics of the diversity-energy relationship. Central to this understanding is determining when biodiversity is in equilibrium and the factors driving the equilibrium/disequilibrium dynamics. I investigate these processes using the novel framework of Equilibrium Theory of Biodiversity Dynamics. This theory postulates the existence of regional and local biodiversity equilibria (i.e., the attractors of biodiversity dynamics), which are determined by the balance of population-size-dependent species origination and extinction and feedback between total community abundance and species richness. I will show how this theory can be applied to understand spatiotemporal diversity dynamics using vascular plant pollen data.

Mots-Clés: macroecology, species, productivity relationship, species, energy relationship, palynology

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