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Salle 201, Bâtiment PS2, CIRAD-UMR AMAP,
Boulevard de la Lironde

Biodiversity and Ecosystem Multifunctionality: Lesson from drylands

presented by

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ABSTRACT

Functional traits are often invoked to explain species coexistence and ecosystem functioning. However, the hypothesis that trait differences determine the ability of ecosystems to maintain multiple functions simultaneously (multifunctionality) remains largely untested at a global scale. In a survey of 124 dryland plant communities, we found a unique scaling relationship between trait diversity of specific leaf area and maximum plant height and multifunctionality (productivity and surrogates of carbon, nitrogen and phosphorus cycling). Across a variety of species pools and environmental conditions, trait diversity within communities was strikingly high and maximized multifunctionality. Trait diversity had a much stronger impact on multifunctionality than other multifunctionality drivers (e.g. species richness, aridity). We uncovered a general scaling relationship that quantifies how much plant diversity is required to maximize multifunctionality in global drylands.

KEY WORDS

Biodiversity; Ecosystem multifunctionality; Drylands; Desertification; Functional traits

Invited and animated by:

Dr. Claire Fortunel (UMR AMAP)

Type:

Research results

Oral language:

english

Language of PPT:

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