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Terrestrial Biodiversity and Ecosystems

From Species to Flora: A Fern Odyssey

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Host: Dr. Kuo-Fang Chung 鍾國芳研究員

[Doctoral Dissertation Defense Presentation]

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Abstract

Life on earth is vanishing at a pace unmatched in human history, even as it continues to sustain the foundations of our existence. Species, the fundamental units of biodiversity, form the basis of conservation planning, ecological understanding, and biological communication. My dissertation addresses a deceptively simple but profoundly important question in studies of biodiversity: how many fern species are there? To answer this, I investigate the evolutionary processes that generate species diversity and evaluate integrative approaches to species delimitation. By clarifying speciation mechanisms and refining species boundaries, this work establishes a more rigorous framework for biodiversity assessment. I further demonstrate how integrative systematic research can strengthen floristic studies, using Vietnam—an exceptionally diverse and taxonomically complex region for ferns—as a case study. Together, these findings underscore the necessity of uniting evolutionary biology, species delimitation, and floristic documentation to better understand and safeguard biodiversity in a rapidly changing world.

Keywords: gametophytes, reticulate evolution, speciation, systematics, taxonomy