中央研究院生物多樣性研究中心
Biodiversity Research Center, Academia Sinica
biodiv@gate.sinica.edu.tw
02-2789-9621

Terrestrial Biodiversity and Ecosystems

The Evolution of Sexual Differences in Morphology and Behavior of Animals, as well as its Ecological Implications

Dr. Chun-Chia Chou
周均珈博士

Postdoctoral Research Associate
博士後研究員
National Museum of Nature Science
國立自然科學博物館

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Venue: Auditorium, 1st Floor
Interdisciplinary Research Building
跨領域科技研究大樓 1 樓演講廳

Host: Dr. Mao-Ning Tuanmu 端木茂甯助研究員

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Abstract

In anisogamous mating systems, males and females play different roles; this constitutes the fundamental source of biological diversity and results in the morphological and behavioural differences in the two sexes. Sexual differences in morphology and behavior occur prevalently throughout the animal kingdom; they are derived by not only the evolutionary selection forces, but also ecological mechanisms. Although the role sexual selection plays in the evolution of sexual differences in morphology and behavior has been widely recognized, we still lack a clear understanding of how the differences are shaped by a variety of ecological, proximate mechanisms, as well as the ecological implications of such differences. Using both the theoretical approach and behavioral experiments in fiddler crabs, I show (1) how the ontogenetic and nutritional mechanisms can promote the morphological differences in the two sexes respectively, (2) how environmental variables can shape the behavioral differences in the two sexes, and (3) how the sexual difference in behaviors can mediate spatiotemporal population dynamics. This talk will not only draw a lens on the role of this fundamental, intersexual differences in bridging the evolutionary and ecological theories, but demonstrate why leveraging this individual-based, evolutionary perspective is necessary for better understanding how animals adapt to the local environment. In the latter part of the talk, I will also propose and briefly introduce my future research directions.