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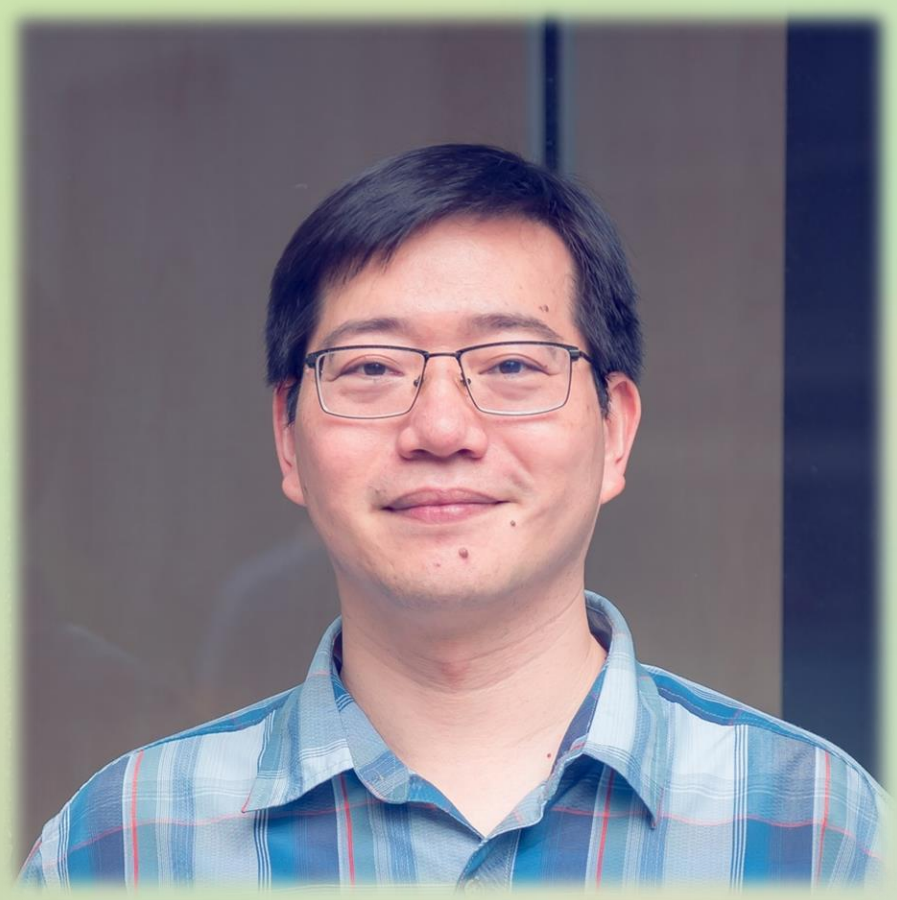
02-2789-9621

Terrestrial Biodiversity and Ecosystems

From Data to Knowledge to Conservation: Leveraging Open Data for Understanding Biodiversity Patterns and Dynamics in the Face of Global Changes



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Time: 2023. 08. 01 Tue. 15:00
Venue: Auditorium, 1st Floor, Interdisciplinary Research Building 跨領域科技研究大樓1樓演講廳
Host: Dr. Isheng Jason Tsai 蔡怡陞研究員

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Abstract

Biodiversity loss resulting from human-induced environmental changes has jeopardized not only ecosystem integrity but also human well-being. Effective conservation actions guided by scientific evidence are crucial for addressing this crisis. However, the development of evidence-based strategies is hindered by the challenges of accessing and integrating dispersed data in various formats, retrieving relevant information from incomplete, biased, and/or unstructured data, and generating useful knowledge by integrating diverse information and inferring mechanisms from patterns. In this talk, I will demonstrate how the team at TaiBIF (Taiwan Biodiversity Information Facility) and my research group address these challenges to gain insights into the spatial patterns and temporal dynamics of different aspects of biodiversity, providing fundamental knowledge for conservation efforts. Specifically, I will first introduce our approach to establish a seamless data flow from data collectors to users, ensuring that the best available data can be utilized to support scientific research and policy making. I will also showcase how we extract novel and biodiversity-relevant information by integrating various types of data, including non-conventional sources, and how we gain mechanistic understanding from biodiversity patterns using trait-based approaches. I will then take our studies on birds' altitudinal migration and community assembly in cities to illustrate how a diverse range of open data can be integrated to address previously challenging questions and uncover new patterns that generate innovative insights. Lastly, I will outline my future research directions, which encompass investigating the impacts of climate changes and variability on biodiversity through the patterns and dynamics of environmental sounds, as well as uncovering the processes driving the diversity of species traits across geographic areas and along evolutionary history.