The University of Hong Kong
School of Biological Sciences

Qualifying Seminar

Addressing the Linnean and Wallacean Shortfalls Through Integrative Research and Citizen Science

Date: 19/11/2026

Time: 14:30

Venue: 6N-11





About the speaker:

Chan Hon Chiu Marco is a PhD student supervised by Professor Benoit Guénard and Professor Simon Sin. His research interests include arthropod taxonomy and biogeography, including ants and spiders, and integrating citizen science efforts with academic research methods. Marco is also an avid environmental educator, combining wildlife photography and public events to increase public awareness on arthropod diversity and conservation.

Abstract:

The paradox of insect conservation equates to immense knowledge shortfalls in their taxonomy and distribution despite being the most diverse eukaryotic organisms on the planet. Even though they possess great taxonomic and functional diversity, especially within tropical regions, contributing to countless ecosystem functions and services, insects are mostly overlooked by stakeholders and misunderstood by the public. These two factors in tandem cause conservation efforts to be lagged during ongoing alarming population declines. It is therefore increasingly urgent to achieve high taxonomic resolution and a better understanding of the biogeographic distributions of different species. Overcoming such knowledge shortfalls through utilizing integrative research frameworks can assist in biodiversity cataloguing, inventory and understanding threats to native communities by non-native insect species through increased sampling in understudied regions. Such investigations can involve both academic and the public, where academic researchers can become better connected with a wider demographic to not only establish effective scientific communication, but also to help foster greater conservation awareness towards these organisms.

By using ants as a model organism, this thesis implements an integrated research framework, combining both conventional entomology research practices with citizen science programs, to investigate biological invasions and cataloguing biodiversity from local to global scales. First, the diversity and biogeography of the hyperdiverse ant genus *Strumigenys* will be studied through taxonomic revisions and descriptions of newly discovered species. Second, by combining newly collected data from the previous chapter and from several existing databases, the global distribution of non-native *Strumigenys* will be studied using species distribution modelling, and to investigate the aptness of environmental variables used when modelling subterranean ants. Third, the effectiveness and reliability of citizen science programs will be investigated by implementing a local program to detect incoming and the spread of biological invasions in Hong Kong. Finally, a quantitative comparison of global citizen science datasets to investigate the relationship between attributes of a citizen science program and the quality and coverage of data collected, thus, to inform decision-making processes when designing citizen science projects.