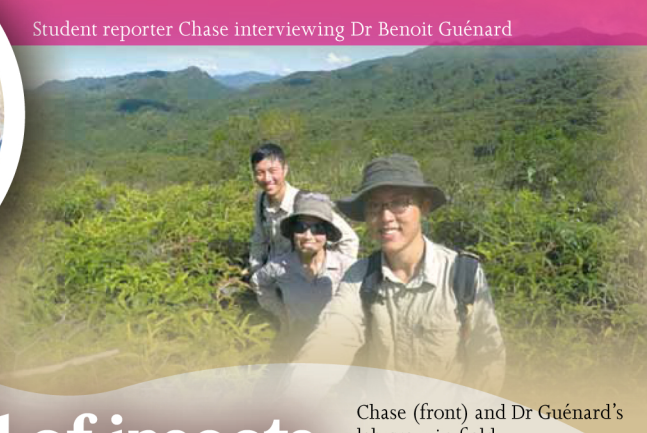
Student reporter Chase interviewing Dr Benoit Guénard



Big journey in a small world — the discovery of the world of insects

by WANG Liuwei Chase, Year 2 BSc (Ecology & Biodiversity) student

Chase (front) and Dr Guénard's lab crew in field

Are insects worth studying? How important are they for ecosystems? Is insect biodiversity facing the same threat as larger vertebrates? I had so many questions in my mind before I offered to volunteer in the Insect Biodiversity and Biogeography Laboratory of Dr Benoit Guénard, School of Biological Sciences.

In our very first meeting, Dr Guénard explained why he chose insects as his focus in ecology research. Insects stand for the majority of biodiversity in our planet, with over one million species described and potentially several other millions to be described, compared to just a few thousand of birds and mammals species. Their abundance is as spectacular, with an estimate of 10^{18} living individuals, or about 145 million insects per human. Such a large number places insects at the ecological foundation of terrestrial ecosystems, undertaking ecological roles such as the decomposition and cycling of nutrients in soil, pollination and seed dispersal, modifying soil structure and aeration, and representing a major food source in the food chain, etc.

Later on, Dr Guénard showed me his collection of ants that completely enhanced my understanding of their diversity and astonishing morphology. Under a microscope, ants looked incredibly different from what I could perceive solely with my eyes, every part of their body showing the complexity of their evolution. "Ants are relatively old, about 140 million years old, and extremely successful for the past 50 million years during which they have dominated most terrestrial ecosystems", said Dr Guénard.

Last spring, I joined Dr Guénard and his lab crew in several field excursions. In the forests of Hong Kong, insects were everywhere when we turned the rocks or logs around or flipped tree leaves. We observed long trails of ants, one following another in the search of a nest or cooperating with others carrying larger preys. Dr Guénard explained that ants, along with bees, some wasps and termites, have reached eusociality, the highest level of social organization in animals. Worker ants forage for food sources, take care of brood and actively defend their nest against any predators or intruders (including biology students), while queens undertake reproductive functions. This high division of labor through specialized castes in social insects' societies allows these colonies to achieve every function necessary for survival and to rule on the gigantic world of arthropods.

Tropical and subtropical regions like Hong Kong present some of the highest richness of insects in the world but are also paradoxically some of the least studied and therefore more effort in the exploration of insects is needed. Dr Guénard's team has already discovered nearly 30 newly recorded ant species in Hong Kong and there are definitely many more to be discovered. Last summer my journey with insects just started here in HKU and also expanded to my hometown, Hainan Island. It's with no doubt that plenty of fascinating discoveries will be encountered along the way and potentially I could contribute to the GABI (the Global Ant Biodiversity Informatics) project, a 1.7 million records database on ant distribution led by Dr Guénard, and see my contribution displayed on its visualization interface antmaps.org launched last summer.

antmaps

Student reporter profile

Wang Liuwei, Chase year 2 Ecology & Biodiversity student from Hainan Island, volunteering in the Insect Biodiversity and Biogeography Laboratory, currently working on a project on the ants in Hainan.

"It has been so much fun learning about ecology and insects, especially the diversity and complexity of their behaviours. The beautiful nature in Hong Kong and the effort that the people spend in protecting it really inspired me."

Fascinating World of Insects

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