



The University of Hong Kong  
School of Biological Sciences

**Public  
Seminar**

# Dietary Niches of Birds in Hong Kong

**Date: 25 January 2024**

**Time: 09:30**

**Venue: 6N-11**

## About the speaker:

Chan Lai Ying, Alex, is an MPhil student in Dr. Simon Sin's lab. She has broad interests in molecular ecology and bird conservation.

## Abstract:

Understanding the dietary niche of birds has significant implications for the trophic interactions in ecosystems. Hong Kong has remarkably high biodiversity in both habitats and avian species. However, the dietary niches of many birds in Hong Kong remain understudied. This thesis investigated the dietary niche of birds in Hong Kong, with a focus on niche partitioning and their functional role as plant seed dispersers.

First, the stopover diets of the critically endangered Yellow-breasted bunting *Emberiza aureola* and five other sympatric bunting species were analyzed using DNA metabarcoding with three markers (18S, ITS2 and COI) on faecal samples. It was revealed that all bunting species primarily consumed Poaceae, with the Yellow-breasted bunting occupying a distinct niche by consuming a high proportion of cultivated *Oryza* (rice) compared to other sympatric bunting species. Conversely, other bunting species shared a highly similar diet. Other grasses, such as *Echinochloa* and *Digitaria*, were identified as major food sources for all studied buntings. Individual variations in dietary composition were observed between conspecific Yellow-breasted buntings. Morphological measurements, such as wing length, were found to have limited influence on these variations. Knowledge of the dietary requirements of buntings is valuable for informing future conservation efforts.

The second study analyzed the dietary compositions and seed dispersal services of five common bird species in secondary forests in Hong Kong using a combination of DNA metabarcoding (18S, ITS2 and *trnL*) on faecal samples and seed germination experiments. The results showed a high overlap in diets and seed dispersal services among these birds. Their diets comprised a diverse range of plants and a limited amount of invertebrates. It was also found that these birds consumed seeds of numerous native shrubs that exhibit avian dispersal syndromes. However, ingested seeds generally took a longer time to germinate compared to control seeds extracted directly from intact fruits. This study has provided insights into understanding the plant-bird trophic interactions and seed dispersal patterns in the secondary forests in Hong Kong.

Overall, this thesis demonstrated the use of DNA metabarcoding to study the dietary niches of birds in Hong Kong, as well as their ecological functions. The findings of this study are valuable for future ecological research and conservation.

