

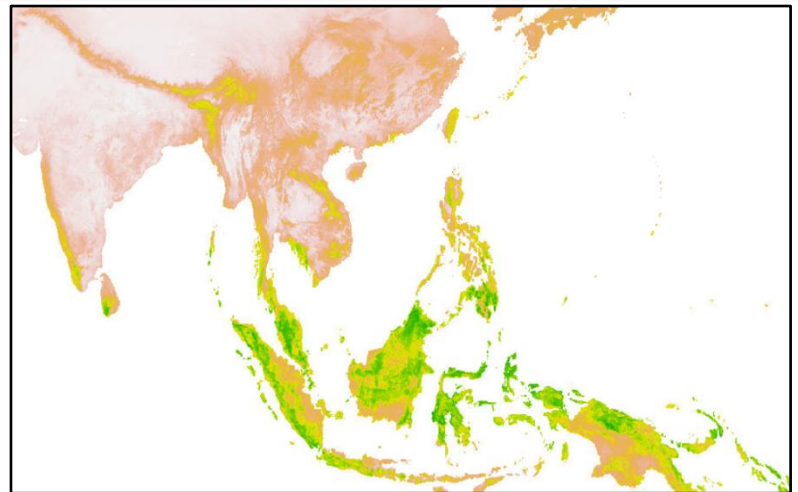


# Predicting the unpredictable: Niche truncation effects on extrapolation in butterfly species distribution models

**Date: Wednesday, 30 August**

**Time: 9:30 am**

**Venue: 3N01**



## About the speaker:

Eugene, Yau Yu Hin is a 1st year MPhil student in the Global Change and Tropical Conservation Lab, working under the supervision of Prof. Timothy Bonebrake and Dr. Alice C. Hughes. He is interested in butterfly distribution shifts under climate change and is working on methods to accurately predict such shifts using correlative models.



## Abstract:

Butterflies are ectotherms, sensitive to changes in environmental temperature. Although butterflies can shift their range poleward to evade the heating tropics under climate change, information on such shifts is necessary for allocating conservation resources effectively. Species distribution models (SDMs) are important conservation tools, widely used to predict species' distributions under climate change. However, SDMs are often forced to extrapolate when predicting species distributions, especially in the future tropics, as there are currently no analogous environments with similar temperature and precipitation conditions to inform species responses to such environments. Predictions made by extrapolated SDMs could be error prone and therefore of limited utility for conservation.

For my MPhil, I will explore the factors affecting the degree of extrapolation of SDMs in Southeast Asia, namely the range of data using in model calibration, the algorithm used to construct the SDMs, and the environmental variables used in the SDMs. I will also test the effect of butterfly distribution pattern and the range of foundational environmental niche of butterflies on the degree of extrapolation in a virtual environment where effects of other factors (e.g. connectivity) can be ignored. Results will help improve SDM extrapolation performance to ultimately produce more accurate model predictions of butterfly (and other taxa) distribution shifts under climate change.