國 立 中 央 大 學

統 計 研 究 所

學 術 演 講

主 講 人：黃文瀚 教授（國立清華大學統計學研究所）

講　　題：**What can occupancy models gain from time-to-detection data?**

時　　間：**112年02月21日（星期二）上午11：00 ～ 12：00**

地　　點：中央大學鴻經館**M429**室

茶　　會：**上午 10：30 ～ 11：00**　　地　點：鴻經館 **510** 室

ABSTRACT

The time taken to detect a species during site occupancy surveys contains information about the observation process. Accounting for the observation process leads to better inference about site occupancy. We explore the gain in efficiency that can be obtained from time-to-detection (TTD) data and show that this model type has a significant benefit for estimating the parameters related to detection intensity. However, the efficiency improvement for estimating occupancy probability parameters is generally very minor. To explore whether TTD data could add valuable information when detection intensities vary between sites and surveys, we developed a mixed exponential TTD occupancy model. This new model can simultaneously estimate the detection intensity and aggregation parameters when the number of detectable individuals at the site follows a negative binomial distribution. We found that this model provided a much better description of the occupancy patterns than conventional detection/nondetection methods among 63 bird species data from the Karoo region of South Africa. Ignoring the heterogeneity of detection intensity in the TTD model generally yielded a negative bias in the estimated occupancy probability. Using simulations, we briefly explore study design trade-offs between the number of sites and surveys for different occupancy modeling strategies.

This work was done in collaboration with Dinusha Priyadarshani, Res Altwegg, and Alan T. K. Lee.

◎敬請張貼　　歡迎參加◎