



中央研究院生物多樣性研究中心

Biodiversity Research Center, Academia Sinica

biodiv@gate.sinica.edu.tw  
02-2789-9621

## Unravelling the Ecological Processes Underlying Bird Migration Across Scales



**Dr. Marius Somveille**

**Research Fellow**  
**Centre for Biodiversity and Environment Research**  
**University College London, UK**

**Time : 2022. 11. 08 Tue. 10:00**

**Venue: Auditorium, 1st Floor**

**Interdisciplinary Research Building**

**跨領域科技研究大樓 1 樓演講廳**

**Host: Dr. Mao-Ning Tuanmu 端木茂甯助研究員**

Terrestrial Biodiversity and Ecosystems





## Abstract

Billions of birds migrate every year between breeding and wintering grounds, exhibiting a remarkable diversity of routes and seasonal destinations both between and within species. These seasonal movements of migratory birds cause a seasonal redistribution of bird diversity that radically changes avian community composition worldwide. Recent technological advance is leading to a rapid increase in the amount of available data on the movement and distribution of birds. However, despite much research describing migratory behaviour, the underlying forces driving avian migration patterns remain largely unknown. My research combines the development of mechanistic, simulation-based models with the analysis of big data sources to test hypotheses about the processes driving bird migration at different scales. Results indicate that birds tend to distribute across the world in an energy-efficient way, i.e. minimising energy expenditure while targeting areas for maximum energy assimilation considering intra- and inter-specific competition for access to resources, and that migration is an adaptation allowing birds to optimise their energy budget in the face of seasonality and competition. This work provides a strong basis for predicting the impact of environmental change – in particular I am investigating climate change and agricultural intensification – on migratory birds and the resident communities they visit.