

HONOURS PROJECT

Non-human commuters: Predicting species movement ability and occurrence in urban environments

Supervisor: Dr Holly Kirk

Project background: Urban environments are often made up of highly fragmented patches of habitat (either remnants, or managed green spaces such as parks) surrounded by a matrix of land-uses generally considered to be non-habitat. One of the major assumptions in urban animal ecology is that species can move between these patches of habitat, across the surrounding "urban matrix". Species movement ability (e.g. mean flight distance) is used to estimate the distance an animal could move to reach a new habitat patch, but often these movement estimates are based on data recorded outside urban areas.



By recording species occurrence and modelling this against land use maps we can explore the following questions: Given literature-derived estimates of animal movement capability, what is the predicted distribution of different species? Does the distribution of species match the expected distribution? Could land-use type effect the movement ability of different species and how do different species respond to these challenges?

This research project involves field data collection, statistical modelling and spatial modelling and could be undertaken on a broad range of urban occurring animal species (including birds and invertebrates). Some bird survey data already exists that can be used by students not wishing to undertake fieldwork.

Objectives: This project will uncover species movement ecology by comparing observed occurrence with spatial patterns predicted from non-urban studies. It will involve two key components:

- 1) Urban fieldwork collecting occurrence data for native birds or invertebrates
- 2) Desktop analytical work to collate land use data and analyse

Significance: The movement ecology knowledge generated by this project will feed directly into applied urban planning guidelines for Biodiversity Sensitive Urban Design being used by a range of local governments and developers.

Funding: The Population Biology and Genomics team will cover all operating costs (materials, travel expenses) for the project.




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