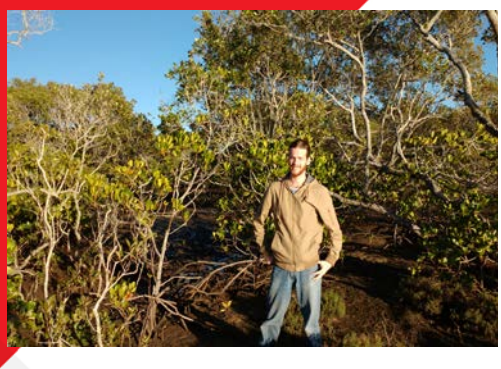

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Summary

Population connectivity refers to the process of individuals moving between discrete habitats, either as adults or juveniles. Population connectivity defines the isolation of populations and understanding population connectivity can greatly assist in successfully managing natural systems. Marine connectivity has been a popular area of research in the past. However, intertidal plant species (mangrove and saltmarsh) have been greatly understudied. This is particularly concerning given their substantial economic significance.

Mangroves are intertidal forests which grow in low energy systems of the tropics and sub-tropics. These systems provide critical habitat for many animals (including many fished species), protect shorelines from erosion, improve coastal water quality and are exceptionally good at the long-term storage of carbon. Long-distance dispersal of mangrove trees primarily occurs as propagules (germinated seeds) which are transported by tidal waters.

The aim of my PhD study is to identify environmental factors which influence the ability of mangrove propagules to disperse through forests. As well as identifying patterns of connectivity for the mangrove tree populations of Moreton Bay. I will achieve this using mark-recapture experimentation in conjunction with both genetics and modelling techniques.

This work has implications, not only for mangrove dispersal and mangrove rehabilitation, but for plant dispersal ecology more broadly as potential interactions between these plants, specific habitat attributes, and their dispersal vector (the environmental entity responsible for moving the propagule, in this case tidal waters) may have analogues in other systems. For example, vegetation density may inhibit large-bodied dispersal vectors from dispersing long distances. This interesting and understudied aspect of population connectivity may prove to be an important consideration and complicating factor in the assessment of the rate of exchange between populations of many organisms.

Research Expertise

- Mangrove plant ecology
- Marine population connectivity
- Population genetics