Patterns and drivers of tropical freshwater biodiversity

By Alexandra Zieritz
University of Nottingham Malaysia.

Freshwater ecosystems are crucial for people, providing water, food and energy. Freshwater invertebrates are poorly studied but provide important services, including water purification and sediment stabilisation. This biodiversity is rapidly declining due to habitat destruction, pollution, dams, overexploitation, climate change and biological invasions. Effective conservation requires a clear understanding of the spatial and temporal patterns of biodiversity and threats. However, for freshwater invertebrates in tropical Asia - one of the most biodiverse regions of the world - these data are currently not available. This seminar will examine how a combination of modern and traditional scientific tools can be used to effectively improve our ability to protect freshwater biodiversity in the region. Past and present patterns of biodiversity can be assessed and monitored through field expeditions that make use of both local knowledge and molecular tools, such as DNA metabarcoding and eDNA. Species distribution modelling can identify taxa and areas of particular conservation concern, reveal the drivers of changes in biodiversity, and predict future changes. Finally, science can help to improve political willingness to invest in conservation by quantifying the direct and indirect value of biodiversity to humans.

Biosketch:
Alexandra Zieritz is a freshwater and molecular ecologist at the University of Nottingham Malaysia. Her research focuses on the ecology, evolution and conservation of tropical freshwater diversity.