



Molecular ecology and systematics of New England Tablelands Bioregion endemic outcrop shrub populations.

Peter J Pemberton (University of New England); Manu E Saunders (University of New England); John T Hunter (University of New England); Elizabeth M Wandrag (University of York); Rose L Andrew (University of New England).

Old Climatically Buffered Infertile Landscapes (OCBILs) theory explains why certain areas have a high incidence of endemic and rare species, and instances of granite rock outcrops in the New England Tableland Bioregion qualify as OCBILs. These granite outcrops often exist as terrestrial islands, that are isolated in a larger landscape matrix. Flora species confined to OCBILs have a high incidence of endemism and rarity. Many OCBIL shrub species have gravity-dispersed seeds and are only pollinated by localised insects. These characteristics will limit gene flow, and relatively small distances may be sufficient for allopatry if pollen or seeds are not transferred between disjunct outcrops. The genetic isolation may drive diversification and create OCBIL speciation cradles. To understand how OCBIL shrubs diversify and persist, I will be conducting systematics, molecular ecology and pollinator research on several granite outcrop shrub species in the New England Tablelands Bioregion. Using multi-species coalescent analysis, I will investigate aspects of the systematics of *Cyanothamnus inflexus* subspecies that has not been previously tested. In addition, I will examine patterns of divergence in a broader set of OCBIL and non-OCBIL taxa, to understand the evolutionary history and adaptations terrestrial island flora in a relatively understudied OCBIL region.

Peter Pemberton: ppember2@myune.edu.au