

PhD project: opportunity for a student

The carbon sequestration potential of mixed species tropical plantations

Background Mixed species plantations are often used in tropical forest restoration programs. While their role in restoring ecosystem function has been explored, their carbon sequestration potential has not. For example, it is not clear what mix of species will optimise the rate and amount of carbon sequestered. The carbon sequestration potential of tropical plantations is important globally within the context of climate change and increasing atmospheric CO₂.

The forests of the Atherton Tableland in north Queensland have been extensively cleared, but many forest restoration programs using mixed species are underway.

Project aims This study will examine the carbon storage potential of species commonly used in restoration plantations. Assessment of carbon stocks and flux at both the individual and the stand level is anticipated. The allometry (age- or size-related) of carbon content of the above-ground components will be estimated from measures of wood density, stem volume and the carbon content of biomass. Understorey biomass will also be assessed, along with carbon stocks in coarse woody litter, finer debris, leaf litter and fine roots. Carbon flux of trees and shrubs will be estimated by converting annual growth rates of marked plants to biomass and carbon gains.

The study will be conducted on the Atherton Tablelands. For the first year of field research the researcher will live on the Tableland (Atherton or Malanda). Thereafter the researcher will be based at Charles Darwin University in Darwin, Northern Territory.

Resources Operating expenses for travel are available. Successful application is conditional on obtaining an Australian or International postgraduate study award to cover living expenses.

Research supervisors
Assoc. Prof. Mike Lawes (CDU), Dr Noel Preece, Dr Anna Richards (CSIRO)

For more information

Contact: Mike Lawes.
Phone: +61 (8) 8946 6527.
Email

Michael.Lawes@cdu.edu.au

School for Environmental Research, Charles Darwin University, Darwin NT 0909, Australia.

