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## PROJECT 5.1

### Revegetation Techniques

*Project Leader: Associate Professor David Lamb (UQ)*

Large areas of tropical forest land in Australia and overseas have been degraded. This has caused a reduction in biodiversity, structure and productivity of these areas. In many cases it has also caused a change in the protective function of vegetation and led to increased erosion and river sedimentation.

There are various ways such areas can be reforested. For example, reforestation using fast growing exotic tree species can restore productivity though this will not restore biodiversity. Such reforestation may or may not also restore the protective function of forests. Reforestation using more than one native tree species can make a greater improvement to regional diversity but may or may not improve productivity. These different forms of reforestation have different costs and will overcome degradation at different rates.

The project aims to explore the merits of a variety of approaches to forest rehabilitation using existing field trials as well as newly established trials. The project will do this by concentrating in particular on:

- (1) Developing means of accelerating the rate of biodiversity restoration at degraded sites. Studies will examine methods of re-introducing plant species and the successional outcomes of different methods of community assembly.
- (2) developing methods of farm forestry that provide for timber production and biodiversity. This involves monitoring plantations of high-value rainforest trees in monocultures and mixed plantings. Such methods could allow relatively large areas to be rehabilitated but will also require that some of the trade-offs that must be made between production and conservation be resolved. A key component of this work will be to devise ways of designing species mixtures that are complementary and stable over time.

### POSTGRADUATE STUDENTS

Mark ANNANDALE (UQ) Masters (suspended)  
*Assess the effect of underplanting with Toona ciliata in north Queensland*

Susan DOUST (UQ) PhD  
*Restoration of tropical and sub-tropical rainforest ecosystems*

Bruce DUNN (UQ) Hons  
*The influence of edge effects on seedling recruitment within tropical forest restorations*

Peter LOWTHER (UQ) Masters  
*Ideal plantation density for native timbers*

Sean McNAMARA (UQ) Hons  
*An assessment of the growth and site requirements of rainforest tree species established in*

Anne PERRY (UQ) PhD  
*Wood quality assessment of plantation growth of Flindersia brayleyana CRRP plantations*

Anita PETRIE (UQ) PhD  
*Anatomical responses of rainforest seedlings to dual light environments*

Anna RICHARDS (UQ) PhD  
*The functional importance of biodiversity for carbon sequestration*

Matthew SCUGALL (UQ) Hons  
*Success of the Wet Tropics Tree Planting Scheme habitat restoration plantings in north Queensland*

Ilyas SIDDIQUE (UQ) PhD  
*The effects of functional diversity of tree plantations on the restoration of soil fertility in degraded soils*

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