

RESEARCH

Project 4.1

Project 4.3

Project 4.5

PROJECT 4.2**Sustainable roads, powerlines and walking tracks****Project Leaders: Dr Miriam Goosem (JCU) and Professor David Gillieson (JCU)**

The project systematically examines the impacts of linear infrastructure on the biophysical environment of the Wet Tropics Bioregion and in particular the WTQWHA. Easily-assessed but comprehensive monitoring indicators for those impacts are currently under development and trial. Finally, best practice methodology for construction and maintenance of linear infrastructure within the WTQWHA are being assessed. Impacts of linear infrastructure that have been examined include edge effects; linear barrier effects; intrusions of weeds and pests; mortality on highways and roads; disturbance from noise, heavy metals and movement; erosion potential; and soil structure alterations.

Extension of these assessments to further vegetation types, faunal groups and areas is essential to gain a greater understanding of impacts. Monitoring indicators presently being examined include GIS models of areal extent of impacts, particularly focussing on remote sensing as a monitoring tool for weed intrusions and edge effects. Baseline data and continued monitoring will be required where upgrades and new infrastructure are proposed. Best practice methodology presently being trialled and monitored includes faunal underpasses and overpasses for roads, siting of such engineering solutions with respect to existing and proposed infrastructure; and revegetation to reestablish connectivity and/or canopy closure in infrastructure clearings.

POSTGRADUATE STUDENTS

Sally BUSHNELL (JCU) MAppSci

Effectiveness of revegetation corridors adjacent to faunal underpasses at East Evelyn

Peter BYRNES (JCU) PhD

The impact of roads on ground-dwelling rainforest mammals in the Wet Tropics World Heritage Area

Gregory DAWE (JCU) Hons

The effects of traffic noise on rainforest birds

Heidi HOFFMAN (JCU) Hons

No net loss in the Wet Tropics World Heritage Area

Ulrika LARSSON (JCU) Hons

Edge and linear barrier effects on amphibians along a powerline corridor, and the success of reducing that effect by revegetation

Tina LAWSON (JCU) Hons

Assessment of the quality of riparian corridors and connectivity in the Mossman catchment

Neil MAVER (JCU) Hons

Regenerative and microclimate dynamics of powerline corridors in the Wet Tropics

Catherine POHLMAN (JCU) PhD

Changes in micro-climatic regimes and plant community dynamics of rainforest at powerline corridor boundaries and natural linear barriers

Chris PRATT (JCU) PhD

The dispersal, bio-availability, impact and retention of automotive emissions and contaminants in World Heritage areas

Patricia TURNER (JCU) Masters

*Implications of intraspecific competition between *Carlia rubrigularis* and effects of ecological stress on individual morphology in a narrow rainforest revegetated corridor system*



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