



National Environmental  
Research Program

TROPICAL ECOSYSTEMS *hub*

## **Project 7.1: Fire & rainforests**

**Littoral rainforest, Mabi forest & Mahogany Glider  
habitat**

**Dan Metcalfe & Andrew Ford, CSIRO Ecosystem Sciences**

**Forum Title: Managing for Change**



## BACKGROUND

- Fire is a natural modifier of vegetation composition, structure and distribution
- Fire has been used as a management tool by indigenous people for 000's of years
- Fire regimes changed under European management approaches





## RELEVANCE OF WORK

- Fire is a management tool required to maintain ecosystem health within the Wet Tropics landscape
- Require empirical evidence to support policy and management strategies around application or exclusion of fire
- Climate change scenarios suggest that fire is likely to be a significant contributor to landscape transformation





## RESULTS

Mahogany glider habitat:

- absence of fire allows rainforest to invade
- invasions < 5 years old reversed with fire
- invasions > 10 years old require very high fire intensities
- fire changes recruitment and survival patterns





## RESULTS

### Mabi forest

- seasonally dry forest types may support litter fires in exceptionally dry years
- Such fires may be important in weed control and promoting tree recruitment
- off-site experimental combustion will determine conditions under which fire possible
- microclimatological data will indicate frequency of such events
- climate change scenarios suggest increases?





## RESULTS

### Littoral rainforest

- fire is a significant threat to persistence
- weed invasion, fire in adjacent communities and agricultural/urban environments pose risk
- pilot study mapping littoral rainforest extent, condition and threats
- work with agencies, community and traditional owner groups to improve management and protection





## APPLICATION OF WORK

- Recognise the importance of fire in Wet Tropics landscape, both as a positive and negative influence
- Suggest appropriate fire regimes for different vegetation types
- Incorporate traditional ecological knowledge into management understanding of the role of fire
- Provide empirical data to underpin policy decisions and management strategies
- Inform the discussion about how future climate scenarios will change management imperatives



## FUTURE DIRECTIONS

- conservation advice on littoral and lowland rainforests
- experimental fire for weed control in Mabi forest
- amended fire management recommendations for Mahogany Glider habitat
- incorporation of TEK into fire management policy development
- improved understanding of fire in transitional and potentially transformative role in Wet Tropics landscapes under climate change





## THANK YOU

**CSIRO Ecosystem Sciences**, Atherton, Brisbane &  
Canberra

**Terrain NRM** – Atherton, Innisfail & Mission Beach staff

**Queensland Parks & Wildlife** – Atherton & Ingham  
staff

**Cassowary Coast Regional Council**

**Rainforest Aboriginal People's Alliance**

**Wet Tropics Management Authority**

