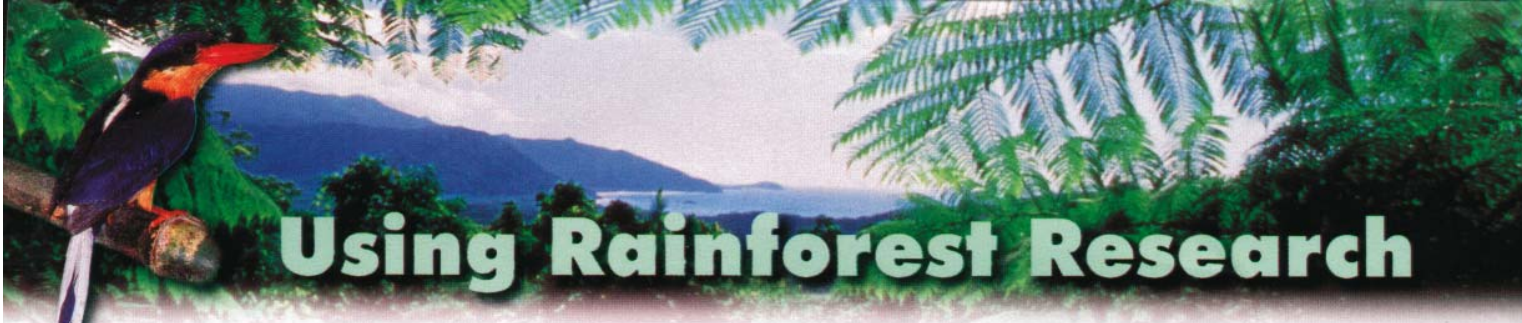




# Using Rainforest Research

## Possums under the spotlight

September 1997

Portable spotlights provide researchers, nature enthusiasts and tour operators with the opportunity to view wildlife at night, but the impacts of spotlighting on nocturnal animals is sketchy. This study highlights what can be done to reduce the impact of spotlighting on the rainforest ringtail possum.

Rainforest ringtail possums are only found in the Wet Tropics of North Queensland, Australia and New Guinea. One of these, the lemuroid ringtail possum *Hemibelideus lemuroids* is restricted to continuous tracts of upland rainforest of North Queensland.

This shy, nocturnal creature shelters in tree hollows during the day and emerges from its den at dusk to feed on leaves during the night. Then it returns to its den as dawn is breaking.



*Robyn Wilson spotlighting for lemuroid possums*

This possum never ventures to the forest floor at night, thus categorizing it as a strictly arboreal animal.

In contrast to the coppery brushtail possum, lemuroid possums are rarely heard vocalizing. Their dark brown coat camouflages them against the canopy, making them difficult to detect unless they are heard crashing through the foliage as they leap and free-fall from tree to tree. Once encountered, they can be located with a spotlight which reflects the animals' eyes.

Tours which offer wildlife spotlighting have increased in popularity in many regions of the Wet Tropics World Heritage Area, but the impacts of this activity on ringtail possum health and survival is unknown.

However, Robyn Wilson's research with the CRC for Tropical Rainforest Ecology & Management is investigating the impacts of human disturbance on the possums. Her findings will lead to measures that reduce these impacts. One of her recent studies has identified a simple and inexpensive way of reducing spotlighting disturbance until more about impacts can be understood.

### Experimenting with lights

Robyn's recent study compared the use of filtered light with non-filtered light on the ability to find possums and see them without causing the undue stress. She made 30 censuses (counts) by spotlighting along a 3km transect of forestry road, which had little traf-



*A lemuroid possum peering down from the rainforest canopy*

fic (approximately 1 vehicle/day). All surveys were made between 1930 and 2300 hours; the time at which most spotlighting tours operate.

Fifteen of the surveys were conducted using a 30 watt lamp with no filter and fifteen using a 30 watt lamp with a clear filter (see Graph 1). The clear filter consisted of a single layer of clear Nylex contact, purchased from a stationery shop.

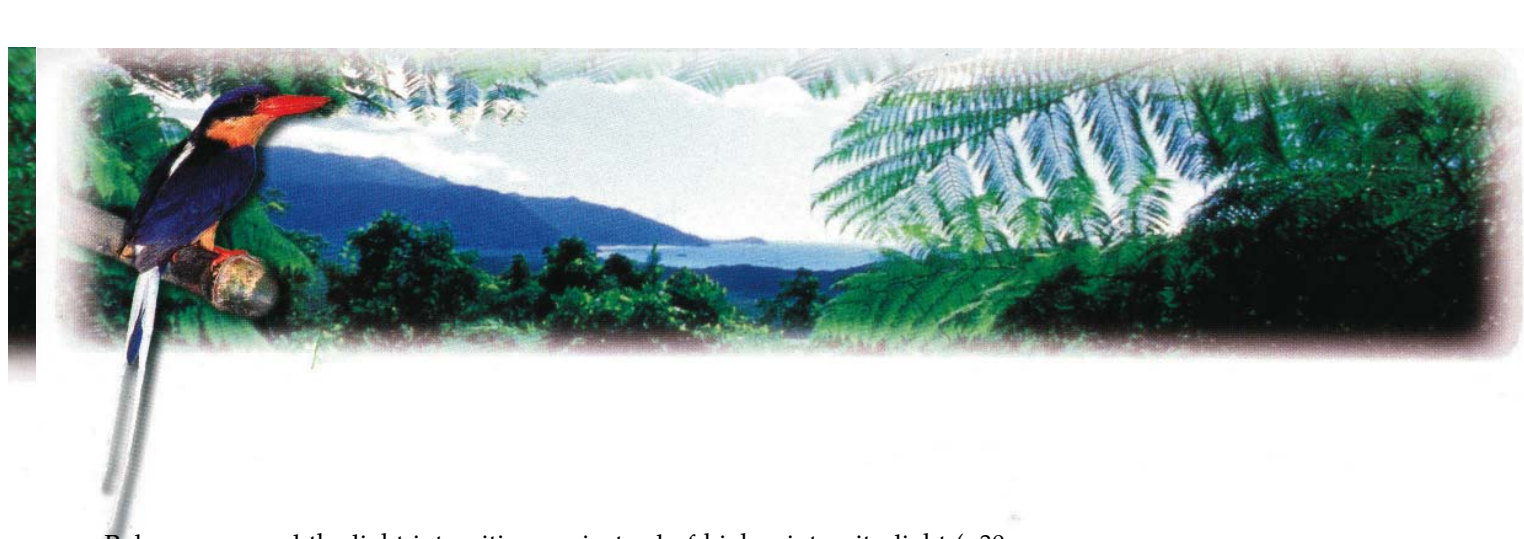
To measure the behaviour of the possums under the two light treatments, Robyn observed each individual possum for 30 minutes, recording its behaviour and orientation to the light at 30 second intervals. Because some animals left the area before the full observation could be completed more animals had to be observed under non-filtered light than filtered light (see Graph 2). Most of the possums were observed at a distance of 10 metres.

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Robyn compared the light intensities of the 30 watt lamp with and without the filter at 5 metre intervals from the light source using a DES Q-1400 lux meter. She found that light intensity decreased over distance. For example, at 10 metre the light intensity using a clear filter was a quarter of that observed with no filter.

### Possums' reaction

The decrease in light intensity over distance with a clear filter was similar to that measured when using a red or green filter. The graphs illustrate how the possums reacted to each of the light treatments.

A) Strong light penetrates further into the forest than low intensity light, disturbing the possums well before they are sighted resulting in fewer animals being sighted. (Graph 1).

B) Fewer animals needed to be observed to achieve a full 30 minute behavioural study under lower intensity than stronger intensity light, indicating the lemuroid ringtail possum tolerated the lower intensity light better than stronger intensity light. (Graph 2).

C) Fewer head movements, an indicator of stress, were recorded under low light intensity compared with higher light intensity. (Graph 3).

### Conclusion

Robyn's spotlighting counts and behavioural studies indicate that when low intensity light (<30 watts) is used

instead of higher intensity light (>30 watts) more lemuroid ringtail possums are sighted, possums can be observed for longer and they appear less agitated. Therefore, the use of low intensity light will benefit these nocturnal mammals by lowering the impact of light disturbance and at the same time benefit the ecotourism spotlighting activities by allowing them to see more animals and watch them for longer periods.

Some suggestions for good eco-tourism viewing

- Use a 30 watt lamp with a clear or red filter for spotlighting. Robyn's experience is that this also reduces observer fatigue
- Use good binoculars or a telescope.
- Use a telescope mounted to a T.V monitor in a vehicle – so fewer lights are focused on an individual possum at any one time.

Robyn's remaining studies are addressing the impact of human disturbance such as light and noise on the breeding success for this possum species.

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