

Glow worms glimmer on cue

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(PhysOrg.com) -- University of Queensland researcher and lecturer Dr David Merritt has discovered Tasmanian cave glow-worms are energy conservationists: they switch their lights off at night-time.

The discovery was made during a partially funded UQ Firstlink study which revealed the glow-worm's prey-luring light output is governed by circadian rhythms, regardless of ambient light levels.

The study aimed to investigate the physiology and behaviours of cave dwelling glow-worms, which are actually the immature or larval stage of a mosquito-like fly found in Queensland, New South Wales, Victoria, Tasmania and New Zealand.

The study's leader, Dr Merritt, said unlike their rainforest dwelling counterparts, the cave-dwelling Tasmanian glow-worm can detect the time of day, even from the deepest stretches of their caves.

"In the rainforest, exposure to light during the day causes them to switch off, but in caves there is no light to cause that to happen, however they switch off of their own accord and they do it in synchrony," Dr Merritt said.

"The most unexpected result of the study was they are out of sync with their surface relatives: they glow most brightly when it is daylight outside the cave."

Dr Merritt suggested this discovery could strengthen the Queensland and

Tasmanian insect eco-tourism industries and ensure the glow-worms can continue to do what they do best – shine.

"The more we know about the factors that influence the glow intensity the better off managers of these sites will be in ensuring that the display is as attractive as possible while maintaining the long-term health of the glow-worm colonies," he said.

Dr Merritt's research could also help safeguard the species against climate change, by providing insight into their predatory behaviours and the impact of seasonal rhythms and human activity on the caves and their fauna.

"Our work has the potential to reveal insights into the evolution of bioluminescence and the way biological rhythms can be acted on by natural selection to become optimised for different environments," he said.

Local glow worm tours may be found at Natural Bridge in Springbrook National Park on the Gold Coast.

Provided by University of Queensland

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