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A new method to find environmental mechanisms of life history evolution in insectivorous mammals

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Temporal variation in food availability shapes the life history strategies of female mammals. Females are assumed to gain fitness benefits from matching births with annual or seasonal peaks in food abundance, thereby increasing their ability to meet the maximum energetic demands of lactation. Selection for synchronised seasonal breeding results when young born outside the peak birth period face long-term disadvantage. Overall food abundance affects reproductive rate and other life history traits. In mammals, most studies on these topics have been on herbivorous species. We know little about food availability on a macroecological scale and its life history consequences for insectivorous mammals. We present a standardised method to record long-term but detailed food availability for insectivorous mammals. We used horizontally-set, programmable time-lapse camera traps with a close focal distance and white led flash. We have deployed cameras at sites throughout Australia (and 2 in PNG) since 2013. These are revealing how arthropod seasonality and abundance are related to latitude, mean and variation in rainfall and temperature, substrate and vegetation; helping to increase understanding of the underlying environmental mechanisms of life history evolution in female dasyurid marsupials at a macro-ecological scale.

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ABSTRACT BOOK