

Party animals or party poopers? Moon phase and illumination's impact on nocturnal mammalian pests.

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Nocturnal mammals worldwide alter activity levels in response to moon phase. Understanding this behaviour allows better control of their populations. In NZ we spend much effort in controlling possum (*Trichosurus vulpecula*), mouse (*Mus musculus*), stoat (*Mustela erminea*) and rat (*Rattus* spp.) populations. There is little understanding of how activity levels change with moon phase and none on the impact of illumination. If we can predict when activity levels are highest then the deployment of pest control or monitoring techniques would be more efficient and effective. The overall aim of this study was to quantify the impact of moon phase and illumination on mammalian pest activity levels. Indirect indices of activity, Waxtags™ and camera traps, were used in three field sites on Banks Peninsula, Canterbury over two months to assess activity levels. Illumination was measured using Sky Quality Meters. Variables such as vegetation and weather were recorded. The Banks Peninsula data, as well as historical data from South Otago and the Hawkes Bay, were analysed using a generalized linear mixed model with a binomial distribution and a logit link function. Preliminary results suggest lunar neutrality for all four pests. This research explores new techniques for analysing nocturnal mammal behaviour, and by shedding light on nocturnal pest activity we can boost the efficiency and effectiveness of pest control and monitoring.