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Seasonal Reproductive Patterns of Bats in Universiti Putra Malaysia Serdang Campus and Their Relationship with Climatic Factors

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ABSTRACT

Universiti Putra Malaysia Serdang Campus (UPMSC) is a recognised green campus with approximately 97% of its area covered by forest, vegetation, plantations, farms, and grasslands. However, information on the seasonal reproductive patterns of bats and their relationship with climatic factors in this urban campus landscape remains unavailable. This study aimed to document the reproductive patterns of bat species in UPMSC and assess their relationship with climatic factors. Sampling was conducted over eight months in two phases (December 2019–March 2020; July–October 2020) using mist nets, harp traps, and hand nets at foraging areas, building roosts, and vegetation roosts. A total of 1,122 individuals representing 12 species from three families were recorded, with *Cynopterus brachyotis* being the most abundant species. Five species, which are *C. brachyotis*, *Eonycteris spelaea*, *Rousettus amplexicaudatus*, *R. leschenaultii*, and *Scotophilus kuhlii* were reproductively active throughout the sampling period. Significant correlations between reproductive status and climatic factors were found only in *C. brachyotis*, with rainfall positively affecting certain male reproductive stages and negatively affecting female post-lactation, while temperature showed a negative correlation with several male and female stages. The reproductive activity of other species appeared to be aseasonal or weakly influenced by climate, likely due to stable food availability from year-round fruiting and flowering plants. These findings highlight the adaptation of several bat species to an urban campus environment and the importance of green spaces for sustaining bat populations. The results contribute to biodiversity conservation planning in urban landscapes and support the achievement of Sustainable Development Goal 15 (Life on Land).

Keywords: Chiroptera, Macroclimate, Phenology, Rainfall influence, Urban landscape