

**Research Article**

## **Diel Activity Pattern and Co-occurrence of Mammal Species in the North-eastern Landscape, Arunachal Pradesh, India**

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### **ABSTRACT**

Diel activity of mammals reflects inter and intraspecific behavior with implications for spatial planning towards conservation management. The assemblage of mammalian species in an Eastern Himalayan landscape unit was studied from 2018 to 2020 using camera traps. We used timestamp photographs to understand the circadian rhythms of the species through activity patterns, temporal overlap with respect to sunrise - sunset and spatial co-occurrence using R core. Among the recorded predators, Dhole was observed to be cathemeral. Most primate species show activity close to sunrise; however, the Arunachal Macaque was active during midday. The Wild Pig, which is nocturnal, also shows an activity peak before sunset. Temporal overlap among primates shows higher paired coefficients between stump-tailed macaque and capped langur with  $\Delta = 0.76$ . The Marbled Cat exhibits a higher intergroup overlap with Serow, Red Muntjac, and Sambar, with coefficients of 0.84, 0.82, and 0.72, respectively. Dhole has activity overlap with all the prey species (higher with Takin ( $\Delta = 0.59$ ) and goral ( $\Delta = 0.62$ )). Within the Artiodactyl guild, temporal overlap was higher between the Serow and Red Muntjac ( $\Delta = 0.81$ ). The probabilistic model of species co-occurrence shows species interactions among 16 out of 24 species. The black bear and sun bear show different diurnal activity peaks but no overlap or co-occurrence. The ethological information about Takin and few other small mammals are one of the prominent findings of the present study. Long term studies in the region, will further elucidate the spatiotemporal relationships among the species and aid management and conservation strategies

**Keywords:** Circadian rhythms , Spatio-temporal, Kamlang Tiger Reserve, Mishmi Takin, Sun bear

