



Ishana Shukla

Year: Senior

Advisor: Roxanne Beltran

From Above, Below, or Within? Drivers of Sleeping Strategies in Mammals

Mammals must optimize their sleeping strategies to maximize foraging opportunities while minimizing predation risk or competition. However, predominant sleeping strategies and the degree to which sleep is driven by bottom-up and top-down factors across terrestrial and aquatic taxa remains largely unknown. Here, we review findings from 232 publications and classify sleeping responses of 147 species into four categories: grouping, physiological adaptations, temporal avoidance, and nesting. We evaluate the frequency of distinct sleep strategies across phylogeny, trophic level, and habitat. Furthermore, we show that human presence affects the sleeping habits of all trophic levels, especially apex predators. Human induced behavioral changes in top predators cause cascading changes to sleeping behavior, leading to asynchronous predator-prey activity and a positive feedback loop towards nocturnality.