

Gone With the Wind: Implications of renewable energy on bat populations

Renewable energy is a major climate change mitigation tactic; yet often has unintended consequences for wildlife populations. Wind turbines, for example, attract bats, which strike turbine blades and die in large numbers. Bat fatalities at wind turbines not only threaten bat populations, but can negatively impact the economic viability and long-term sustainability of wind energy as strategies that reduce bat fatalities such as curtailment (i.e., shutting off wind turbines during peak fatality periods or specific wind speeds) are mandated. Several hypotheses to explain the reasons bats are attracted to wind turbines have been proposed; yet, to date, the causes are still unknown. Understanding the proximate and ultimate cues for bat attraction to turbines will facilitate development of measures to deter bats from wind farms. I will discuss ongoing research in the Fritts lab that focuses on several hypotheses regarding bat attraction to wind turbines including landscape level siting of wind farms, olfaction and scent marking, movement/noise of blades, increased foraging at wind farms, and pre-siting activity monitoring methodologies that may lead to bias. Additionally, I will discuss the conclusions of an experimental study that assessed species-specific flight and echolocation responses of bats to acoustic deterrents that emit ultrasonic frequencies to deter bats from wind turbines. These studies are, in part, enabled by construction of the largest outdoor bat flight cage known in the U.S. at the Freeman Center at Texas State University and in collaboration with state and federal agencies and private energy companies.