North American bat monitoring: 5 years of stationary acoustic data from Kespukwitk, southwest Nova Scotia 2021-2025

Sarah C. Clements[1], Lori J. Phinney[1]

[1]*Mersey Tobeatic Research Institute, Caledonia, Nova Scotia*

The North American Bat Monitoring Program was established in 2015 to provide a coordinated and standardized continental bat program to assess and sustain viable bat populations. The Mersey Tobeatic Research Institute and Wasoqopa'q First Nation Ecology Program established long-term monitoring under this program in Kespukwitk (southwest Nova Scotia) in 2021 at 11 sites across four grid cells, including two NABat priority areas. Annual monitoring was conducted each July from 2021 to 2025, with seven nights of data at each site, using Wildlife Acoustics Song Meter SM4Bat FS to record bat passes. A total of 343 monitoring nights were completed and 22,697 recordings were reviewed in Kaleidoscope Pro. Although detection trends varied by location, overall bat detections increased across years as indicated by an increased mean activity per night. Little Brown Myotis (*Myotis lucifugus*) accounted for most activity, consistent with recent monitoring and historical data. We observed higher than anticipated levels of migratory bat activity at our coastal sites and sites with greater connectivity to coastal habitats via waterways; indicating that a better understanding is required of their presence locally, outside migration windows. Although presence and occupancy can be assessed using these methods and the project framework, the limited road network in Nova Scotia constrains application of mobile transect surveys to monitor abundance. Overall, our efforts have enhanced understanding of summer bat activity and species distribution in Kespukwitk, which will contribute to future conservation strategies and range-wide monitoring efforts for each species.

Keywords: acoustic monitoring, Little Brown Myotis, long-term monitoring, migratory bat, NABat, white-nose syndrome