Assessing the influence of socials calls on bat mist-netting success in North America

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ABSTRACT

Since the introduction of the fungal disease White-Nose Syndrome in 2006, millions of North American bats have perished. For many species, the disease has caused over a 90 percent decline in abundance. With populations fluctuating as the pathogen spreads, biologists require improved methods of estimating bat demographics and abundance. Previous research indicates that mist netting success may be improved with the use of acoustic lures at mist-netting locations. Our research investigates which type of social calls improve the capture rates of North American bats, including the big brown bat (*Eptesicus fuscus*). Social call types used include antagonistic buzzes, distress calls, advertising calls, mother-to-offspring calls, and cohesion calls. We deployed acoustic lures at each netting site from 15 May 2017 to 15 August 2017. We created 5-hour long playlists using 10-minute blocks of each of the 5 call types, including a block of silence as control. We recorded the time of each bat capture to indicate the call block each individual entered the net. We utilized maximum likelihood analysis in program R to identify if call type had an influence on bat captures. Analysis indicated that European distress calls negatively impacted big brown bat captures. Overall, this suggests that researchers should utilize North American bat calls to improve capture rates of big brown bats.

KEYWORDS

Chiroptera, Vespertilionidae, Myotis, bats, social calls, acoustic lure