A New Northern Record of the Evening Bat in Michigan

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As a precautionary measure, the Michigan Department of Health and Human Services typically tests more than 1200 bats for rabies each year (K. Signs, in litt.), even though almost all (95%) are negative for presence of the virus (e.g., Kurta 1979). These bats ultimately are identified to species in a cooperative venture by biologists from Eastern Michigan University and the Wildlife Disease Laboratory of the Michigan Department of Natural Resources. Documentation of such a large number of bats provides valuable information concerning the seasonal and geographic distribution of these mammals within the state. In this note, we report a new, northernmost record of the Evening Bat (*Nycticeius humeralis*) in Michigan based on an animal submitted for rabies testing.

This bat, which was negative for rabies, was found on a tree on 11 June 2016, 5–6 ft (1.5–1.8 m) above the ground, near the shoreline of Lake Michigan in northern Allegan County, close to the border of Ottawa County (42° 43'N, 86°12'W). It was received for rabies testing by the Department of Health and Human Services on 14 June 2016. The bat was a pregnant female with two fetuses, each with a crown-to-rump length of ca. 0.5 in (12 mm). The mother had a total length of 3.7 in (95 mm) and forearm length of 1.5 in (38 mm). She weighed 0.4 oz (10.5 gm), although dessication and removal of the brain for testing had undoubtedly reduced the actual weight by the time the bat was examined. The animal was easily identified as an Evening Bat by its continuously curving tragus (a projection at the anterior of the ear opening) and the presence of only one pair of upper incisors (Kurta 2008). The skull and skeleton are preserved at the T. L. Hankinson Vertebrate Museum of Eastern Michigan University (EMU M1232).

The Evening Bat is a migratory species that barely enters the Great Lakes region in spring and summer (Kurta 2017). The previous northern record in Michigan was from Ann Arbor, Washtenaw County (Auteri and Kurta 2015), the latitude of which is about 27 mi (44 km) south of the latitude of capture in Allegan County. This species apparently is expanding its range northward, with multiple recent records from Michigan (Auteri and Kurta 2015) and with both Wisconsin and Minnesota documenting their first evening bats in 2015–2016 (Wisconsin DNR 2016, Minnesota DNR 2016). Some biologists have observed small-scale spatial shifts in activity associated with niches vacated by species devastated by white-nose syndrome (Jachowski et al. 2014), and Evening Bats could hypothetically take advantage of this destabalization to expand their range. However, we believe that this is an unlikely explanation for the increased number of sitings in Michigan, because the species of bats most affected by that fungal disease, members of the genus *Myotis* (Turner et al. 2011), have always been uncommon in southern Lower Michigan (Kurta 2008). Instead, we speculate that the Evening Bat is expanding its range northward into Minnesota, Wisconsin, and Michigan in response to climate change and increasing temperatures that are more conducive to successful reproduction by this southern species.

Acknowledgments

We thank R. Oldenkamp and K. Straka of the Wildlife Disease Laboratory for assistance while identifying the bats tested in 2016, and K. Signs of the Michigan Department of Health and Human Services for providing information.

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