An Acoustic Survey of Bats at Radford Army Ammunition Plant’s New River Unit, Virginia

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ABSTRACT

White-nose Syndrome (WNS) has caused significant declines in cave bat populations in western Virginia. At the Radford Army Ammunition Plant, New River Unit (Pulaski County, Virginia) pre-WNS bat surveys were minimal and preliminary in nature. Therefore, we completed a large-scale acoustic survey to understand what species of bats occur at the site, and their relative activity. We deployed 12 acoustic detectors at 14 sites for up to 88 nights, May-August 2016. Two automated identification programs recognized 119,600 and 150,391 valid echolocation call files (Kaleidoscope v. 4.0 and EchoClass v. 3.1, respectively). Kaleidoscope identified 60% of bat calls as belonging to the Big Brown Bat (Eptesicus fuscus)/Silver-haired Bat (Lasionycteris noctivagans) group, 28% as Eastern Red Bat (Lasiurus borealis), 5% as Myotis species, 3% as Tricolored Bat (Perimyotis subflavus), 2% as Hoary Bat (Lasiurus cinereus), and 2% as unidentified. EchoClass identified Eastern Red Bat (23%), Big Brown Bat/Silver-haired Bat (21%), Hoary Bat (2%), Myotis species (0.2%), and Tricolored Bat (0.3%). Unidentified bat calls represented 53% of call files. We also investigated false-positive identifications of rare species (Myotis spp. and Tricolored Bats) in these automated identification programs using manual verification. Calls auto-identified as Myotis spp. more often keyed out to Eastern Red Bat, but Tricolored Bat calls appeared to be accurately identified. The apparent misidentification by both programs emphasizes the continued need for visual (manual) confirmation of any Myotis spp. calls, coupled with netting efforts at suspect Myotis spp. sites. We find sparse evidence of Myotis spp. and convincing evidence of Tricolored Bats as a continued presence but in low numbers at the ammunition plant.

Key words: automated identification, EchoClass, false positive, Kaleidoscope, Myotis, Perimyotis.

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