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Notarianni et al. • Acoustic Surveys for Rare Bat Species

ACOUSTIC SURVEYS FOR RARE BAT SPECIES AT LEHIGH GAP AND OTHER NATURAL SITES ALONG THE KITTATINNY RIDGE

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ABSTRACT Bats provide ecosystem services to human societies; however, populations of several bat species have declined drastically over the last decade. In Pennsylvania there are 7 species of bats that are of conservation concern, with 3 Pennsylvania state-listed as endangered and 2 species protected under the Endangered Species Act. The goal of this project was to use remote acoustic recording devices to record bat vocalizations in 6 natural areas along the Kittatinny Ridge of Pennsylvania (e.g., Cowans Gap State Park, Swatara State Park, Boyd Big Tree Preserve, Fort Indiantown Gap, Lehigh Gap Wildlife Refuge,, and Jacobsburg Environmental Education Center), and compare bat activity from these areas to each other and to bat activity recorded at Lehigh Gap Wildlife Refuge. Each natural area was surveyed for bat activity on 26-171 nights during the summer of 2018 and the spring and summer of 2019. We detected 9 bat species along the Kittatinny Ridge of Pennsylvania. The Boyd Big Tree Preserve natural area contained the greatest amount of bat activity and species diversity with high species richness. Both Cowans Gap State Park and Fort Indiantown Gap had the highest species richness,

high species diversity, and contained rare bat species. In comparison to these natural areas, Lehigh Gap Wildlife Refuge had relatively low species richness, low diversity, and low community similarity compared to other sites, with the exception of Jacobsburg Environmental Education Center. We recommend expanding remote acoustic survey efforts to additional sites within each natural area, especially at Lehigh Gap. In addition, bat conservation efforts should be taken to increase bat activity at Lehigh Gap through the identification and protection of potential hibernacula, implementation of forest management strategies, and public outreach and education.

KEY WORDS acoustic survey, insectivorous bats, Kittatinny Ridge, Lehigh Gap, Pennsylvania, restoration

Expenditures:

Sonobat Program = \$1,000

Rental Car For Travel = \$450

Gas For Travel = \$200

Tolls for Travel = \$104