Report on Acoustic Bat Survey Conducted for Save the Pine Bush

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Introduction

Regional bats are facing a variety of modern challenges. The most devastating has been White Nose Syndrome, a fungal disease which struck certain smaller cave hibernators particularly strongly. First detected in 2006, it apparently reduced populations of Little Brown Bat (*Myotis lucifugus*), Indiana Bat (*Myotis sodalis*), Northern Long-eared Bat (*Myotis septentrionalis*) and Tri-colored Bats (*Perimyotis subflavus*) by at least 80-90% (New York Natural Heritage Program 2020). Our migratory bats – the Eastern Red Bat (*Lasiurus borealis*), the Hoary Bat (*Lasiurus cinereus*), and the Silver-haired Bat (*Lasionycteris noctivagans*) – seem to have largely escaped the effects of White Nose Syndrome, but appear to suffer especially high mortality because of collisions with wind turbines (AWWI 2018). Finally, as strict insectivores, declines in insect populations could affect all of our bat species (UNEP/Eurobats 2018).

These threats emphasize the importance of bat conservation, and maintaining summer habitat is one ingredient. Forests seem to be key habitat components for most of our bat species, because they provide summer roosts and/or help support ample insect populations. Forest removal, especially when followed by conversion to extensive impermeable surfaces (e.g., parking lots and buildings), is likely to reduce local bat populations.

This short study was undertaken at the behest of Save the Pine Bush in response to proposed development on lands within Albany Pine Bush ecological area. Acoustic sampling from the properties of collaborating land owners was used to gather preliminary information on bat diversity.

Methods

Five Anabat Express bat detectors (see Figure 1 for locations of detectors) were active during the nights of 12-16 May 2020. Due to low temperatures and/or rain storms, conditions were optimal on only two or three evenings.

Four detectors were located in the backyards of houses on the east side of Westmere Terrace (west of Rapp Road). These detectors pointed along the forest edge behind these houses. (Because of the proximity of the detectors to one another, the calls of some bats likely were registered by more than one detector.) One detector was located at the Mobil gas station immediately south of Crossgates Mall; it pointed northwest towards the adjacent lot. Calls were analyzed using Anabat Insight and Wildlife Acoustics Kaleidoscope software. Vetting was primarily manual based on the inspection of each call and comparison to known calls, to call guides, and to expert guidance. The author has carried out periodic bat call recording and analyses since 2006. A Kaleidoscope Auto ID (in the “conservative” mode) was also run on the call files, the same list of species was derived from that analysis as from manual vetting, although there were consistent differences in the assignments of specific calls.

Bat call analysis cannot easily distinguish among all of our bat species. Differentiating between Big Brown Bat and Silver-haired Bats is particularly difficult and for most such calls the safest designation is “Big Brown Bat or Silver-haired Bat”.

Results

Seventeen identifiable call sequences were obtained from the Mobil gas station. Two hundred and twenty-nine identifiable calls were gathered along Westmere Terrace.

Taken together, the calls indicate the definite presence of Big Brown Bat (*Eptesicus fuscus*), and the probable presence of Silver-haired bat, Hoary Bat and Eastern Red Bat. A more detailed summary of the results from the two recording areas follows. There were no apparent recordings of the Tri-colored Bat or any species of *Myotis*.

Mobile Gas Station. The most conservative assignment of almost all these calls would be Big Brown Bat/Silver-haired Bat.

One call appears to be from a Red Bat, although seeing more call sequences would increase the confidence of that attribution. Red Bats have been reported from the Albany Pine Bush.

In order for the detector to remain hidden in this well-travelled site, its location was not optimal from a bat recording perspective. In addition, the proximity of the busy street and gas station may have masked or deterred bat activity.

Back Yards on Westmere Terrace. A greater number of calls were gathered at Westmere Terrace, in part because there were simply more detectors in operation. Most calls were from either Big Brown Bat or Silver-haired Bat. For the majority of these, the species could not be differentiated, but especially high starting frequencies indicated that a few calls were almost certainly Big Brown Bats. A few almost flat calls at ca. 26 kHz were highly suggestive of Silver-haireds, although Big Browns cannot be ruled out.

Four calls indicated the presence of Hoary Bat, while these calls were not abundant and none was of particularly high quality, the fact that four different call sequences suggested the presence of this species make its occurrence distinctly possible. Hoary Bats have also been reported from the Albany Pine Bush.

Conclusions

This short, snapshot survey at properties adjacent to the proposed development sites documented definite bat activity at both sites. The most extensively documented species, Big Brown Bat, is our most common bat species, but all of our bats are facing threats from development that results in loss of roosting habitat and insect life.

At least one, if not all, of the following species were likely present: Silver-haired Bat, Eastern Red Bat and Hoary Bat. This suggests that additional bat surveys would be appropriate for an adequate assessment of the conservation value of adjacent lands. All are considered 'Species of Greatest Conservation Need' in New York (NYS DEC 2015) and all three (together with at least one species of *Myotis*) have been documented in the Albany Pine Bush (Albany Pine Bush Preserve Commission 2017). During summer, the Hoary and Eastern Red Bats roost in tree foliage, whereas the Silver-haired Bat roosts beneath tree bark. All three species are thus largely dependent on the presence of forest during the breeding season. Furthermore, together with the above bats, the post-White Nose Syndrome presence of the Little Brown Bat (*Myotis lucifugus),* a critically imperiled species in New York State (NatureServe 2020), has been documented at the Pine Bush (Albany Pine Bush Preserve Commission 2015-2016). An earlier report (Lookingbill *et al.* 2013) also reported the presence of Northern Long-eared Bat (*Myotis septentrionalis*), also a critically imperiled species (NatureServe 2020). The potential presence of these even rarer species further suggests that a careful evaluation of the bat fauna should be made if one wants to understand the potential ecological impact of development on lands in this area.

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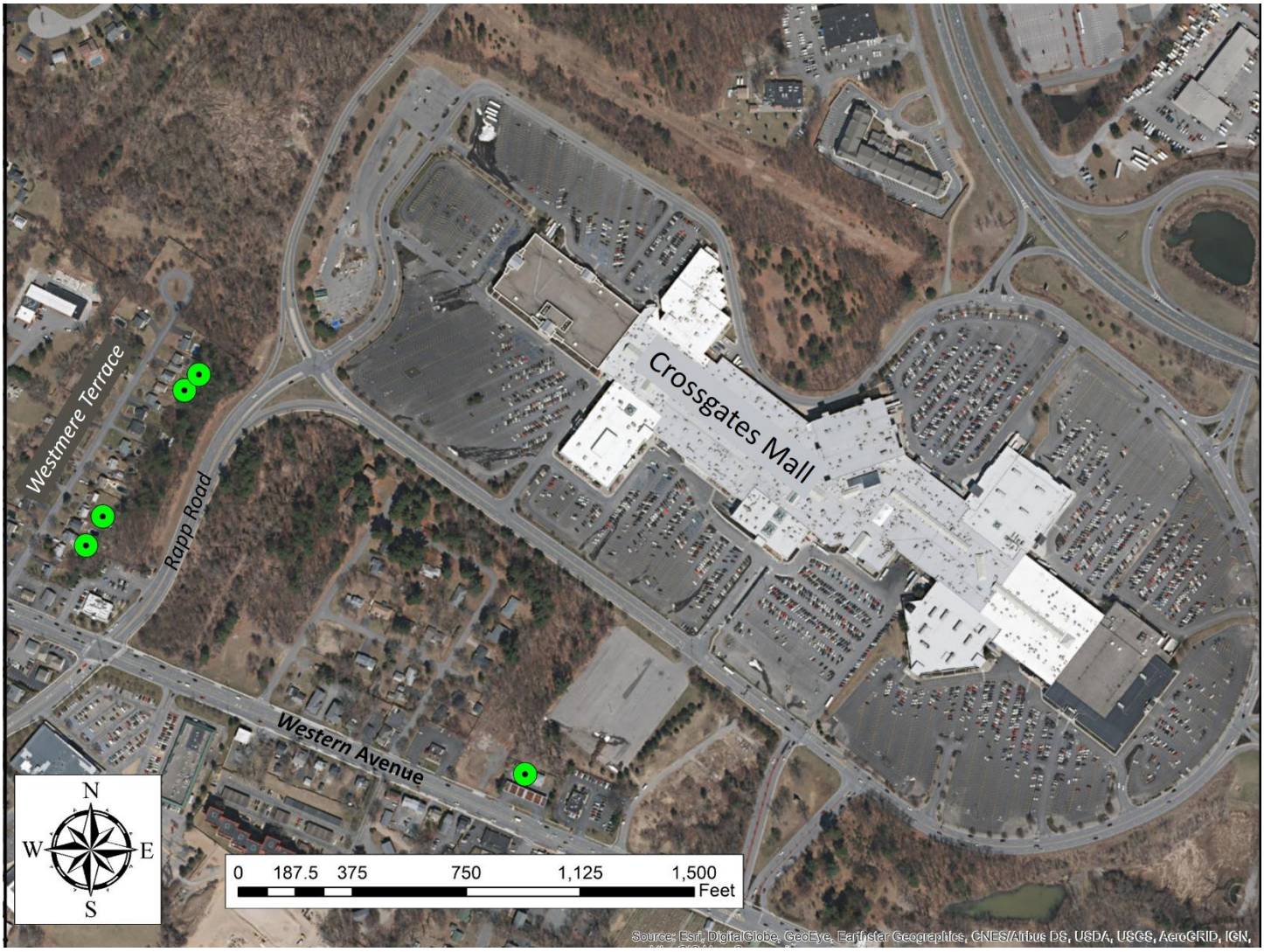

Figure 1. The green dots indicate the locations of the five bat detectors used in this study. The detectors along Westmere Ave. were directed parallel to the forest edge behind the houses. The easternmost detector (at the Mobil gas station) was directed northwest.