

UW–Madison Bat Brigade — Annual Report for 2018

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Primary aim of project: This project seeks to obtain bioacoustic data that will increase our understanding of bat populations within the Lakeshore Nature Preserve while engaging students in a statewide citizen science program. The data obtained will be submitted to the Wisconsin Department of Natural Resources as part of the Wisconsin Bat Project.

Main accomplishments in 2018

Establishment of the Brigade: Much of the efforts of this year were spent establishing the foundation of what will hopefully be a continued bat monitoring effort on campus. A partnership with the Wisconsin Department of Natural Resources Bat Program was established, and wildlife biologist Paul White provided training and project guidance and loaned the necessary acoustic monitoring equipment to the Brigade for the year. An Animal Care and Use Protocol Review Waiver was obtained from UW RARC. A release of liability form was developed and signed by all participants not enrolled in the Biocore course (Evolution, Ecology and Genetics Lab 382) that is associated with this project. Students interested in leading the Brigade project were recruited and trained.

A “bat bag” (fig. 3) was organized to contain all the equipment and paperwork needed to safely conduct a survey. Kennedy Gilcrest, former Lakeshore Nature Preserve bat monitoring permit holder, consulted the Brigade regarding previous bat data and route suggestions. A survey route that traverses a variety of potential bat habitats through the Preserve was established (fig. 2). Protocols were developed to detail procedures for 1) surveying within the Preserve at night, 2) proper use of monitoring equipment, and 3) data download and management conventions. A bicycle mount for the bioacoustic monitoring device was designed and built (fig. 4) with the assistance of Joel Lord, Integrative Biology instrument maker, to allow Brigade members to monitor the Lakeshore Bike Path en route to the Picnic Point entrance as well as other bike paths around Madison.

A Bat Brigade logo (fig. 5) was created in collaboration with UW Zoology Museum artist Jacki Whisenant. A grant from the Friends of the Lakeshore Nature Preserve was obtained to support student involvement in the Bat Brigade. An article introducing the Bat Brigade was published in the Friends of the Lakeshore Nature Preserve fall newsletter.

Surveying: Early summer efforts were focused on establishing protocols for equipment use, determining a suitable survey route, and organizing a survey schedule. Once the Brigade’s operations were established, students checked out the bat bag from the Biocore lab in Noland Hall and conducted surveys that lasted about one hour. Late season (Aug-Sept) student survey participation declined due, most notably, to the maddening numbers of mosquitos and flooding that resulted in trail access complications.

Big Brown was the most frequently encountered species (at least 109 data points throughout the summer). Little Brown, although present in small numbers in earlier months (6 or less per night), spiked substantially in August with at least 32 detected on 8/22 (fig. 1). More low frequency calls (Little Brown, Northern Long-eared, Eastern Red, Evening, Eastern Pipistrelle; 235 total) were recorded than high frequency calls (Hoary, Big Brown, Silver-haired; 169 total). Note: we can only say with confidence that we saw 4 species (Little Brown, Eastern Red, Hoary, and Big Brown). Bats were most prevalent along the south side of picnic point and the Southwestern portion of the Brigade route (near Eagle Heights and the gardens).

2018 by the numbers

- Number of surveys conducted in the Preserve: 13
- Number of surveyors: 22

- Number of species detected in the Preserve: 4
- Species found: Little Brown, Eastern Red, Hoary, and Big Brown
- Distance traveled in Preserve: 61.8 km
- Average duration of a Preserve survey: 65 min
- Total survey time in the Preserve: 835 minutes

Plans for 2019

Strategies for the upcoming season will be developed based on a February consultation meeting with DNR bat program specialists. Tentatively, the Brigade hopes to:

- establish a student leadership structure for the organization
- recruit freshman/sophomores as future leaders
- bolster general student survey participation
- increase the frequency of surveys to help elucidate how bat presence varies over short timeframes
 - perform visual roost surveys at existing bat houses within the Preserve

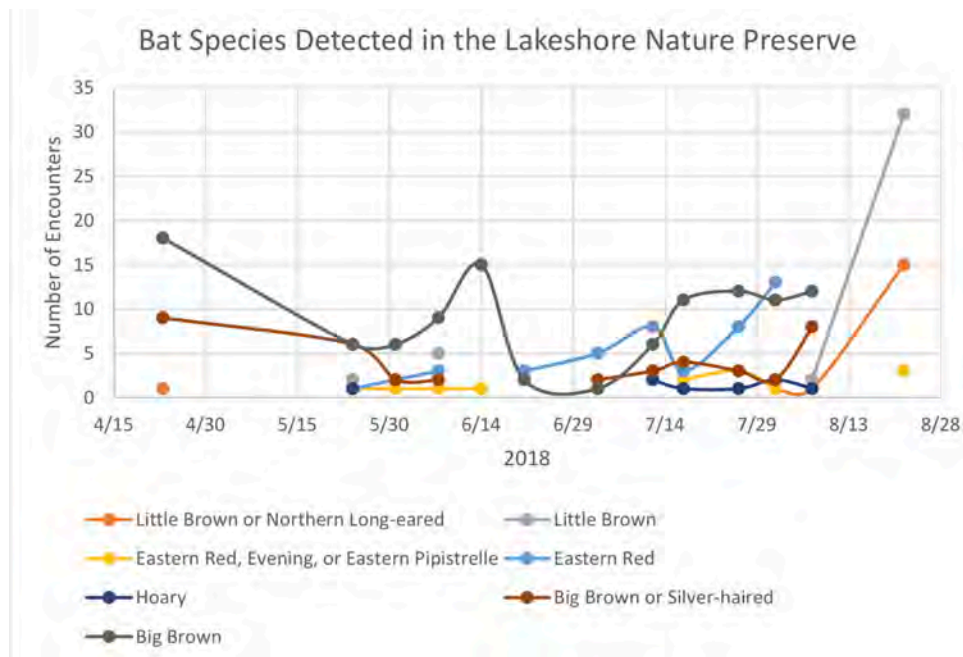


Figure 1: Compiled results from 2018 bioacoustic Bat Brigade surveys in the Lakeshore Nature Preserve. Circles represent total number of bat encounters for specific dates for each species. Connecting lines demonstrate temporal variability and are not intended to infer data trends between survey dates.

Figure 2 (figure omitted): Example of the typical Bat Brigade route and data generated from a Bat Brigade survey in the Lakeshore Nature Preserve. This survey was conducted on July 12, 2018. Bioacoustic files garnered from surveys were sent to the DNR (Andrew Badje) for analysis, and results (in the form of maps like this) were emailed to the Brigade.



Figure 3. The UW Bat Brigade “bat bag” used to carry and protect equipment required for bat surveys (red led clip-light, white led clip- light, high powered flash light, emergency whistle, Kestrel weather meter, echolocation detector and PDA, trail map, clipboard, pencils, data sheets, printed protocols, volunteer waivers, headlamp).



Figure 4. Housing and mount used to attach the bioacoustic monitoring equipment to a bike, kayak, canoe, or wheelchair.



Figure 5. Iterations of a Bat Brigade logo. Sketch and illustration by UW Zoology Museum artist Jacki Whisenant.