

Saint Edward State Park 2017 Bat Survey

Scope of Work

The purpose of this study is to provide State Parks with baseline data on the bat species present at Saint Edward State Park and the types, location and extent of their uses. Results of the study will assist State Parks in natural resource planning for the park and assessing facility development consistent with natural resource needs. The study will include bat species inventory and identification of roost sites, commute corridors, and foraging areas.

The study area includes the Saint Edward Seminary building, the open fields surrounding the building, the ball field, and the two canyons with older age-class forest running from Lake Washington to the Seminary area. The study area does not include the Bastyr College grounds.

The specific objectives are:

- Determine the species composition and activity rates of the bat community using the ball field east of the Seminary Building (passive acoustical monitoring).
- Determine the species composition and activity rates of the bat community using the edge of the open field (near the Grotto and Perimeter Trail) west of the Seminary building (passive acoustical monitoring).
- Monitor bat activity along South Canyon Trail with emphasis on bat passage or roost exit (active acoustical monitoring).
- Monitor bat activity along North Trail with emphasis on bat passage or roost exit (active acoustical monitoring).
- Search for maternity roosts associated with the Seminary building and adjacent buildings using a combination of visual, infra-red, and acoustical detection.

The study tasks to meet these objectives follow.

Passive Acoustical Monitoring

Passive acoustical monitoring will occur for four nights beginning soon after contracting is complete. A second set of four nights of monitoring will occur in early August. Prior to sunset, a passive detector will be placed in the center of the ball field, and another near the edge of the Perimeter Trail. Detectors used include the Pettersson D500x and the Wildlife Acoustics SM2 with microphones elevated at least 2.5 meters off the ground. The detectors will operated for at least two hours after sunset (95% of the evening bat activity in western Washington occurs within 1.5 hours of sunset). For security reasons, the detectors will be retrieved at the end of the evening session.

Active Acoustical Monitoring

Once the passive detectors have been placed, the bat surveyor(s) will proceed to a pre-determined location on either the South Canyon Trail or North Trail in order to detect bat movements through the two canyons. The emphasis not just on determining bat composition and use of the canyons, but to look for evidence of commute routes and large day roosts *to the extent possible*. Evidence would include stringers of bats coming from a single general location at the very beginning of the evening

flight. The bat surveyor will move about the canyons as needed in an attempt to find a source if strings of bats are detected. A combination of acoustical and visual detection will be used. Pettersson D240x and other detectors will be used for this effort. Each canyon will be surveyed at least twice during each of the early and late summer periods. More effort will occur if volunteers with personal detectors are available to assist.

Maternity Roost Search

The emphasis of the maternity roost search is to determine whether the Seminary or Gymnasium building is harboring a large bat roost, especially one used as a maternity roost. First, a day search for bat guano deposited by exiting bats will occur at each building. During the evening, each building will be thoroughly searched for exiting bats using a combination of visual (binoculars), acoustical (D240x), and infra-red (SEEK IR camera) detection. At least one full building search will occur during each of the early and late summer survey sessions. Species use will be determined using the acoustical detector.

Analysis

All acoustical data will be transferred to a desktop computer hard-drive for analysis. All bat data will be analyzed using SonoBat 3.2. Where the software program cannot reliably distinguish between species (such as between silver-haired and big brown bats, or California and Yuma myotis), the record will be individually vetted, and classified to species if possible. Because of overlap of call characteristics, not all calls will be reliably classified to a single species (but usually can be to no more than two species). This issue will be discussed in the analysis.

Reporting

A final report of the survey results will be submitted to the client by August 31, 2017. The report will include:

1. A purpose statement of the study.
2. A study area description including the locations where the detectors were operated.
3. A methodology section.
4. An overview of the species composition of bat use at Saint Edward State Park, with visual examples of calls for each species detected.
5. Tables showing the composition and number of bat passes at each detection location.
6. Results of the search for roosts at the buildings or within the older age-class forests.
7. A conclusion section providing an overall assessment of the value of the park to the local bat community including recommendations for supporting and enhancing bat use in the park, and any need for future study.