Acoustic Monitoring to Assess the Potential for Federally and State Listed Bats in the vicinity of the Swift Lane-Platt Road Project Site, Ann Arbor, MI.

Prepared by:
Daria A. Hyde and Brian J. Klatt, Ph.D.
Michigan Natural Features Inventory, MSU Extension
P.O. Box 13036, Lansing, MI 48901

Prepared For:
Environmental Consulting Solutions
523 West Sunnybrook Drive, Royal Oak, MI, 48073
June 12, 2018
MNFI Report No. 2018 – 11
Acoustic Monitoring Report: Swift Lane-Platt Road Project Site, Ann Arbor, MI

Description of Activities and Summary of Results:

Daria Hyde and Brian Klatt from Michigan Natural Features Inventory, a program of Michigan State University Extension, conducted a habitat assessment at the Swift Lane-Platt Road project site for Environmental Consulting Solutions (ECS) on May 16, 2018. Suitable habitat was found for the Indiana bat (*Myotis sodalis*) and northern long-eared bat (*Myotis septentrionalis*) including snags, trees with exfoliating bark and a permanent water source which could act as a corridor between adjacent forested habitats in the landscape. As a result, acoustic monitoring for federal and state listed bats was recommended to ECS.

Acoustic monitoring was conducted between May 25, 2018 and June 1, 2018 at the site. Two omnidirectional microphones and acoustic detectors were placed at the site, following guidelines by the U.S. Fish and Wildlife Service in the “Range-Wide Indiana Bat Survey Guidelines”, April 2018.

Analysis of the results of the acoustic monitoring was conducted between June 4 and June 8, 2018 using Kaleidescope Pro, Version 4.5.5. No northern long-eared bat calls were detected at either microphone on either night. One call recorded on May 29th at one of the detectors was classified by the program as that of Indiana bat. The P-value for this call was 0.113931 and was not at the threshold of P=0.05 that the U.S. Fish and Wildlife considers to indicate that the species is likely present. Acoustic files from the night that the call classified as Indiana bat were also analyzed using the SonoBat program, version 3.2.2. This program did not classify any calls from that night as Indiana bat. Qualitative analysis of the calls, including those that were classified as “NOID” from May 29th and the morning of May 30th was conducted by Daria Hyde and Brian Klatt. There were no calls that could confidently be classified as belonging to Indiana bat or northern long-eared bat.

The Kaleidescope program classified 12 calls as that of the State threatened evening bat (*Nycticeius humeralis*) and two of these calls were below the P value of 0.05. The Sonobat program also classified 6 calls on May 29, 2018 as belonging to evening bat with a P value of 0.4. All 12 calls were qualitatively analyzed by Daria Hyde and Brian Klatt. As a result, eight of these calls were classified as “Noise”, location calls or poor quality recordings. Four of these calls were of good enough quality and duration that they could not be dismissed and are considered likely evening bat calls.

It is our recommendation that due to the potential of evening bats in the project area that tree removal not be initiated until after September 30th to avoid the possibility of disturbing or causing harm to potential maternity colonies or roosting evening bats. If these guidelines are followed by those initiating the project, we believe that it is unlikely that there will be impacts to evening bats.
Conducted by: Michigan Natural Features Inventory, Michigan State University Extension, for Environmental Consulting Solutions

Report submitted to: Jenny Wong, U.S. Fish and Wildlife Service

Project Name- Swift Lane-Platt Road, Ann Arbor, MI

Site ID No. /Name- Swift Lane 1: N 42.14355 W -83.41945 and Swift Lane 2: N 42.14390, W-083.41930

Habitat Assessment: Appendix 1

Approximate Accuracy of lat/long coordinates- Accurate to within 10 feet-WAAS enabled

Survey Date - May 25, 2018 – June 1, 2018

Person who selected acoustic sites – Brian Klatt and Daria Hyde

Person who deployed detector- Daria Hyde, Yu Man Lee and Dan Earl

Detector Brand & Model- Wildlife Acoustics SM2+

Microphone Brand & Model – Wildlife Acoustics SMX-U1

Microphone Type- Omindirectional

Type of Weatherproofing- foam wind screen and 45 degree PVC elbow with drain hole

Microphone height above ground level vegetation- 15 feet

Distance from nearest vegetation or other obstruction- Swift 1- 18 feet from woodland edge, Swift 2- 22 feet from woodland edge.

Horizontal orientation of microphone - Swift 1- 360 degrees N., Swift 2- 280 degrees W.

Vertical Orientation of Microphone – 45 degrees

Photographs of Detector set up- in Appendix 2.

Detector Settings: Lat/long set- N 42.14355 W -83.41945
UTC time zone set (-4.00 for Eastern Standard Time)
Sample rate set to 384000
Channels set to Mono –R
File format set to Wav
Gain right set to 0.0 dB
Advanced settings

- Dig HPF right set to fs/32 (12000)
- Dig LPF right set to Off
- Trg Lvl Right set to 6 SNR
- Trg Win Right set to 2.0 s
- Trg Max Length set to 6s
- Bits set to 16
- Div Ration set to 8
- Nap Trg Lvl set to OFF

The following advanced program will start recording 30 minutes before sunset, continually running in 15 minute increments, and then stop recording 30 minutes after sunrise.

01 AT SSET-00:30:00
02 SET 38400 x MONO-R
03 DO
04 RECORD00:15:00
05 GOTO LINE 04 00X
06 UNTSRIS+00:30:00
07 GO TO LINE 01 00X

Survey Start time- 30:00 minutes before sunset. Range: 8:29 pm on 5/25/18 to 8:34 pm on 5/31/18

Survey End time- 30:00 minutes after sunrise. Range: from 6:35 am on 5/25/18 to 6:31 am on 6/1/18

Methods used to Field-test proper functioning of Detector- Tested microphone using the calibrator, checked settings on detector.

Were calls collected in Full Spectrum or Zero Crossing- Full Spectrum

Habitat type and or feature surveyed. Swift Drain 1 detector was situated in a grassy opening in the backyard of three abandoned homes. This opening was located 18 feet from the woodland edge (mixed deciduous) and 50 feet from Swift Drain. Swift Drain 2 detector was situated in a woodland opening with standing water in places and near a small pool of water (~6-8’ in diameter). The detector was located 22 feet from the woodland edge (mixed deciduous) and 50 feet from Swift Drain. The two detectors were located 210 feet from each other.

Weather conditions during survey period: (from Weather Underground- Ann Arbor, MI)

- May 25: 84° /50, 0.00 in precipitation, Wind 2-10 mph from the SSW.
- May 26: 80° /57, 0.00 precipitation, Wind 3-14 mph from SE.
- May 27: 91° /62°, 0.00 precipitation. Wind 2-8 mph from S.
- May 28: 93° /61°, 0.00 in rain. Wind 1-7 mph from E.
- May 29: 88° /64°, 0.00 in rain. Wind 4-12 mph from the ENE.
- May 30: 84° /69, Periods of heavy rain and high winds. 0.003 in rain. Winds 8-18 mph from E.
- May 31: 87° /68°, 0.004 in of rain. Wind 12-20 mph from SW.
Acoustic Analysis Information: Summary of Findings

**Name of Service Approved Bat ID Software:** Kaleidescope Pro (Wildlife Acoustics). Version 4.5.5 (which includes Bat Classifier: Version 4.2.0 (using “0” sensitivity setting).

**Program Settings:**

![Kaleidescope Pro Screenshot]

![Kaleidescope Pro Screenshot]
Tables Summarizing Number of Calls ID’d for each Species/Site/Night/Program

See Appendix 3.

Qualitative Analysis: Qualitative analysis was conducted for calls that were recorded on the evening of May 29-30, 2018 when the program classified a call as belonging to Indiana bat. As a result no calls could be confidently classified as belonging to Indiana bat or northern long-eared bat. Several calls were identified as potential evening bat calls and the Michigan Dept. of Natural Resources Wildlife Division was notified.

For comparison, the data for 5/29-18_5/30-18 when Kaleidescope identified one call as a possible Indiana bat with an MLE value of 0.1139 (above the threshold which is considered “likely presence”) was processed through SonoBat Version 3.2.2. No Indiana bat calls were identified and the MLE for the Northern long-eared bat was 0.82.

SONOBAT-5-29_5-30- SWDR2-ANN ARBOR MI

<table>
<thead>
<tr>
<th>Consensus count</th>
<th>Myse</th>
<th>Myso</th>
<th>Mylu</th>
<th>Pesu</th>
<th>Nyhu</th>
<th>Labo</th>
<th>Epfu</th>
<th>Lano</th>
<th>Laci</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected count</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td>1</td>
<td>1556</td>
<td>239</td>
<td>84</td>
</tr>
<tr>
<td>likelihood of presence</td>
<td>0.1800</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.5222</td>
<td>0.1880</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
</tr>
<tr>
<td>MLE</td>
<td>0.8200</td>
<td>1.0000</td>
<td>1.0000</td>
<td>1.0000</td>
<td>0.4778</td>
<td>0.8120</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
</tr>
<tr>
<td>ByVote count</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td>1</td>
<td>1687</td>
<td>421</td>
<td>86</td>
</tr>
<tr>
<td>MeanClsn count</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>14</td>
<td>3</td>
<td>1780</td>
<td>471</td>
<td>94</td>
</tr>
<tr>
<td>LuSo sum</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HiF sum</td>
<td>19</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LoF sum</td>
<td>2953</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>total est. passes</td>
<td>2972</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix 1- Habitat Report
Hello Andrew,

This letter is to inform you of the results of the Habitat Assessment that was conducted by Brian Klatt and myself on May 16 at the Swift Lane/Platt Road site in Ann Arbor, MI.

The results of our assessment indicate that there is potential suitable habitat for the Indiana bat and the Northern long-eared bat at the project site. Numerous snags and several trees with exfoliating bark occur at the site. In particular, several very tall and mature black willow trees that have numerous trunks with loose bark grow along the banks of the Swift Drain. This drain is a permanent water feature that flows through the site and could function as a corridor connecting forested areas in the larger landscape. These features may provide potential summer habitat for roosting and foraging bats.

Accompanying this letter are the completed data sheets required by the U.S. Fish and Wildlife Service for Phase 1 Habitat Assessments.

A draft study plan for acoustic monitoring was submitted to the U.S. Fish and Wildlife and approved for implementation. Please let us know if you would like us to proceed to Phase 2 with acoustic monitoring and we will coordinate as needed to initiate this activity.

Sincerely,

Daria Hyde
Conservation Scientist

Cc: Jenny Wong, USFWS
**APPENDIX A: PHASE 1 HABITAT ASSESSMENTS**

**INDIANA BAT HABITAT ASSESSMENT DATASHEET**

**Project Name:** Swift Lane-Platt Road Property  
**Date:** 5-16-18  
**Township/Range/Section:** T03S, R06W, Sec 11, SW, NW  
**Lat Long/UTM/ Zone:** 42.238963, -83.699314  
**Surveyor:** Brian Klatt & Daria Hyde

**Brief Project Description**  
Construction of apartment complex.

<table>
<thead>
<tr>
<th>Project Area</th>
<th>Total Acres</th>
<th>Forest Acres</th>
<th>Open Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project</td>
<td>~2.75</td>
<td>~1.25</td>
<td>~1.50</td>
</tr>
</tbody>
</table>

**Proposed Tree Removal (ac)**  
- Completely cleared  
- Partially cleared (will leave trees)  
- Preserve acres- no clearing  

<table>
<thead>
<tr>
<th>Vegetation Cover Types</th>
<th>Pre-Project</th>
<th>Post-Project</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A mix of forest areas dominated by black willow and box elder and grassy openings with scattered shrubs and fruit trees.</td>
<td>Some trees may be preserved for aesthetic purposes.</td>
</tr>
</tbody>
</table>

**Landscape within 5 mile radius**  
- Flight corridors to other forested areas?  
  - Swift Drain/Creek likely functions as a flight corridor south to a permanent pond and forested park and north and west to Sheffler Park and County Farm Park to the Huron River.

**Describe Adjacent Properties (e.g. forested, grassland, commercial or residential development, water sources)**  
- The site is located within a residential neighborhood. Several forested parks are located within a mile of the site and within 0.25 miles of a permanent pond and large woodlot. The site is 2.5 miles south of the Huron River.

**Proximity to Public Land**  
- What is the distance (mi) from the project area to forested public lands (e.g., national or state forests, national or state parks, conservation areas, wildlife management areas)?
  - The site is 0.35 miles east of Mary Beth Doyle City Park, 1.0 miles south of Huron Parkway City Park and 1.0 miles southeast of County Farm Park.
APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

Use additional sheets to assess discrete habitat types at multiple sites in a project area. Include a map depicting locations of sample sites if assessing discrete habitats at multiple sites in a project area. A singlesheet can be used for multiple sample sites if habitat is the same.

**Sample Site Description**

**Sample Site No.(s):**

- Swift Lane - Platt Road Site

---

**Water Resources at Sample Site**

<table>
<thead>
<tr>
<th>Stream Type (# and length)</th>
<th>Ephemeral</th>
<th>Intermittent</th>
<th>Perennial</th>
<th>Describe existing condition of water sources: Urban runoff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pools/Ponds (# and size)</td>
<td>standing H2O</td>
<td>Open and accessible to bats?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wetlands (approx. ac.)</td>
<td>Permanent</td>
<td>Seasonal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.25 mi to South</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Forest Resources at Sample Site**

<table>
<thead>
<tr>
<th>Closure/Density</th>
<th>Canopy (&gt; 50°)</th>
<th>Midstory (20-50°)</th>
<th>Understory (&lt;20°)</th>
<th>1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81-100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Trees w/ Exfoliating Bark</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Size Composition of Live Trees (%)</td>
<td>Small (3-8 in)</td>
<td>Med (9-15 in)</td>
<td>Large (&gt;15 in)</td>
<td></td>
</tr>
<tr>
<td>No. of Suitable Snags</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Standing dead trees with exfoliating bark, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**IS THE HABITAT SUITABLE FOR INDIANA BATS?**

---

**Additional Comments:**

There is a permanent water source (Swift Drain) at the site which is bordered by mature trees with exfoliating bark as well as snags which could provide roosting and foraging habitat for bats. The drain could serve as a corridor between adjacent forested habitats in the landscape.

---

**Photographic Documentation:**

Attach aerial photo of project site with all forested areas labeled and a general description of the habitat.

- Habitat shots at edge and interior from multiple locations;
- Understory/midstory/canopy; examples of potential suitable snags and live trees; water sources
Figure 2: Aerial Site Map
Swift Lane – Platt Road Property
Ann Arbor, Michigan
ECS Project N100-0010
Source: Bing Maps
Photographic Documentation of Swift Lane – Platt Road Site, Ann Arbor, MI.

Photo 1: Facing south – Large black willows, some with exfoliating bark grow along Swift Drain

Photo 2: Facing southeast – Forest opening inundated from spring rains with snag in foreground.
Photo 3: Facing northeast – Small snag in foreground next to cut stump.

Photo 4: Facing west - Grassy opening bordered by small trees and shrubs.
Appendix 2 - Photographs of detector set ups
Location of Acoustic Detector Locations at the Swift Lane –Platt Road Project Site

Acoustic Monitor #2
N 42.14390, W -083.41930
Direction – Due West

Acoustic Monitor #1
N 42.14355, W. -083.41945
Direction – Due North
Swift Lane\Drain #1: Acoustic Detector Set-Up

Swift Lane\Drain #1: Close-Up of Top of Detector where Microphone is Located. Mic is angled down and situated at The bottom of the 45 degree elbow with drain hole.
Swift Lane\Drain #2: Acoustic Detector Set-Up

Wildlife Acoustics- SM2+ Acoustic Monitor Set Up
Appendix 3. Tables Summarizing Acoustic Analysis.
### Wildlife Acoustics: Kaleidoscope 4.5.5 Software - Summary of Acoustic Analysis

**Bats of North America 4.4.0 S/A: 0**

Swift Lane\Drain, Ann Arbor, MI: Acoustic Station #1

<table>
<thead>
<tr>
<th>Date</th>
<th>EPTFUS</th>
<th>LASBOR</th>
<th>LASCIN</th>
<th>LASNOC</th>
<th>MYOLUC</th>
<th>MYOSEP</th>
<th>MYOSOD</th>
<th>NYCHUM</th>
<th>PERSUB</th>
<th>NOID</th>
<th>NOISE</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-26_5-27-18</td>
<td>1188</td>
<td>1</td>
<td>40</td>
<td>65</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>152</td>
<td>443</td>
</tr>
<tr>
<td>Number of Calls</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Presence P-Values:</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0.044526</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-27_28-18</td>
<td>1626</td>
<td>5</td>
<td>66</td>
<td>70</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>151</td>
<td>685</td>
</tr>
<tr>
<td>Number of Calls</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Presence P-Values:</td>
<td>0</td>
<td>0.507279</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0.862804</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-28_29-18</td>
<td>1334</td>
<td>2</td>
<td>49</td>
<td>48</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>129</td>
<td>625</td>
</tr>
<tr>
<td>Number of Calls</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Presence P-Values:</td>
<td>0</td>
<td>0.633213</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-29_5-30-18</td>
<td>1606</td>
<td>5</td>
<td>86</td>
<td>33</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>156</td>
<td>856</td>
</tr>
<tr>
<td>Number of Calls</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Presence P-Values:</td>
<td>0</td>
<td>0.968058</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0.519047</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-30_31-18</td>
<td>1285</td>
<td>3</td>
<td>43</td>
<td>48</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>162</td>
<td>516</td>
</tr>
<tr>
<td>Number of Calls</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Presence P-Values:</td>
<td>0</td>
<td>0.968058</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0.314285</td>
<td>0.038989</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-31_6-1-18</td>
<td>1243</td>
<td>1</td>
<td>50</td>
<td>33</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>104</td>
<td>472</td>
</tr>
<tr>
<td>Number of Calls</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Presence P-Values:</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date</td>
<td>Species</td>
<td>Num. Calls</td>
<td>Presence P-Values</td>
<td>EPTFUS</td>
<td>LASBOR</td>
<td>LASCIN</td>
<td>LASNOC</td>
<td>MYOLUC</td>
<td>MYOSEP</td>
<td>MYOSOD</td>
<td>NYCHUM</td>
</tr>
<tr>
<td>----------</td>
<td>---------</td>
<td>------------</td>
<td>-------------------</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
</tr>
<tr>
<td>5-25_5-26-18</td>
<td></td>
<td>471</td>
<td></td>
<td>EPTFUS</td>
<td>LASBOR</td>
<td>LASCIN</td>
<td>LASNOC</td>
<td>MYOLUC</td>
<td>MYOSEP</td>
<td>MYOSOD</td>
<td>NYCHUM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0.205448</td>
</tr>
<tr>
<td>5-26_5-27-18</td>
<td></td>
<td>483</td>
<td></td>
<td>EPTFUS</td>
<td>LASBOR</td>
<td>LASCIN</td>
<td>LASNOC</td>
<td>MYOLUC</td>
<td>MYOSEP</td>
<td>MYOSOD</td>
<td>NYCHUM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td>0</td>
<td>0.062536</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0.857512</td>
<td>1</td>
<td>0.553084</td>
</tr>
<tr>
<td>5-27_5-28-18</td>
<td></td>
<td>420</td>
<td></td>
<td>EPTFUS</td>
<td>LASBOR</td>
<td>LASCIN</td>
<td>LASNOC</td>
<td>MYOLUC</td>
<td>MYOSEP</td>
<td>MYOSOD</td>
<td>NYCHUM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td>0</td>
<td>0.579511</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0.139338</td>
<td>1</td>
<td>0.056099</td>
</tr>
<tr>
<td>5-28-18</td>
<td></td>
<td>6</td>
<td></td>
<td>EPTFUS</td>
<td>LASBOR</td>
<td>LASCIN</td>
<td>LASNOC</td>
<td>MYOLUC</td>
<td>MYOSEP</td>
<td>MYOSOD</td>
<td>NYCHUM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.000569</td>
<td>1</td>
<td>0.752425</td>
<td>0.514543</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>5-29_5-30-18</td>
<td></td>
<td>448</td>
<td></td>
<td>EPTFUS</td>
<td>LASBOR</td>
<td>LASCIN</td>
<td>LASNOC</td>
<td>MYOLUC</td>
<td>MYOSEP</td>
<td>MYOSOD</td>
<td>NYCHUM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td>0</td>
<td>0.974142</td>
<td>0.031382</td>
<td>0.133014</td>
<td>1</td>
<td>0.113931</td>
<td>0.054908</td>
<td>1</td>
</tr>
<tr>
<td>5-30_5-31-18</td>
<td></td>
<td>203</td>
<td></td>
<td>EPTFUS</td>
<td>LASBOR</td>
<td>LASCIN</td>
<td>LASNOC</td>
<td>MYOLUC</td>
<td>MYOSEP</td>
<td>MYOSOD</td>
<td>NYCHUM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td>0</td>
<td>0.93522</td>
<td>0.427484</td>
<td>0.96321</td>
<td>0.266556</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>
### Presence P-Values

<table>
<thead>
<tr>
<th>5-31_6-1-18</th>
<th>EPTFUS</th>
<th>LASBOR</th>
<th>LASCIN</th>
<th>LASNOC</th>
<th>MYOLUC</th>
<th>MYOSEP</th>
<th>MYOSOD</th>
<th>NYCHUM</th>
<th>PERSUB</th>
<th>NOID</th>
<th>NOISE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of calls</td>
<td>313</td>
<td>1</td>
<td>40</td>
<td>124</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>186</td>
<td>390</td>
</tr>
<tr>
<td>Presence P-Values</td>
<td>0</td>
<td>1</td>
<td>0.000634</td>
<td>1E-07</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**EPTFUS:** Big Brown Bat (*Eptesicus fuscus*)

**LASBOR:** Eastern Red Bat (*Lasiurus cinereus*)

**LASCIN:** Hoary Bat (*Lasiurus cinereus*)

**LASNOC:** Silver-haired Bat (*Lasionycteris noctivagans*)

**MYOLUC:** Little brown Bat (*Myotis lucifugus*)

**MYOSEP:** Northern Long-eared Bat (*Myotis septentrionalis*)

**MYOSOD:** Indiana Bat (*Myotis sodalis*)

**NYCHUM:** Evening Bat (*Nycticeius humeralis*)

**PERSUB:** Eastern Pipistrelle (*Perimyotis subflavus*)

**NOID:** No Identification

**NOISE:** Not considered a bat call

**P-Values** - P values approaching zero are considered to have high levels of certainty. Those values approaching 1 are considered to have low levels of certainty.