Virtual Bat Acoustic Field Activity
Bat Call Key

Through the Virtual Bat Acoustic Field Experience Activity[1] within CAP, students can use information and graphics in this key to help identify bat calls collected with SonoBat and EchoBat technology. When looking at a spectrogram of bat calls, students should identify the relative frequency range of the pulses. Frequency can be found on the left side, on the y-axis. Students can use the key below to match up the frequency found on the spectrogram with the frequencies listed below. In addition to frequencies, students can also examine the shape of the pulses on the spectrogram.

Table of Contents

Eastern Bat Species in CT:

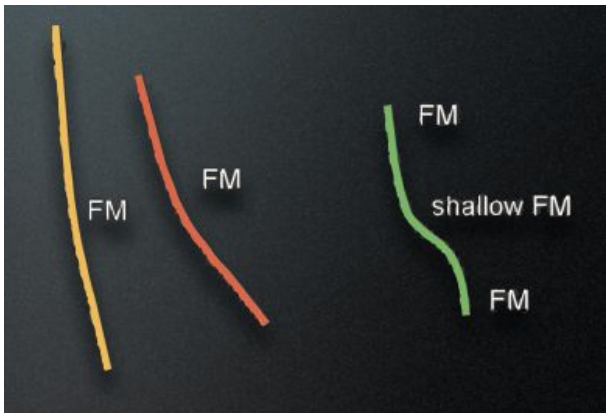
Acoustic 'Guilds' for Eastern Bats

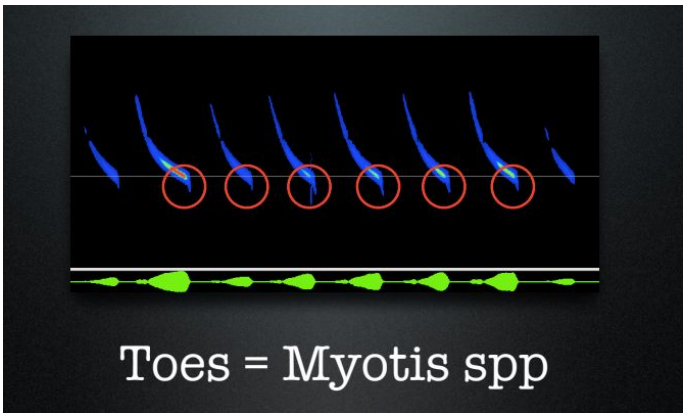
FC Range	Species
45-50kHz Toes (page 2-4)	MYOLEI, 'LUC, 'SEP, 'SOD
~40kHz J-shape (page 5)	PIBSUB, LASBOR
~30kHz (page 7)	EPTFUS, LASNOC
<20-25kHz (page 8)	LASCIN

[1] This information is from Bat Conservation and Management, in their Bat Workshop Training. It is to be used for educational purposes only.

45-50kHz Toes

Myotis bats: 45-50kHz (Steep FM): Myotis bat species will have calls that appear like these on an echometer, with 'toes'

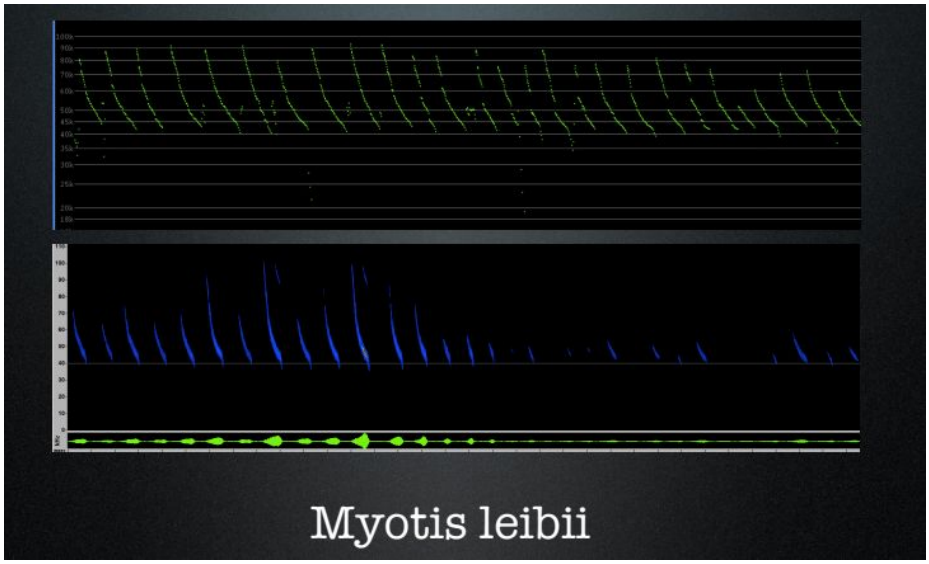


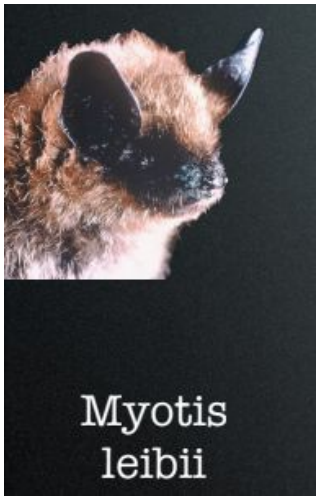


- *Myotis leibii*
- *Myotis lucifugus*
- *Myotis septentrionalis*
- *Myotis sodalis*

Eastern Small-Footed Bat: *Myotis leibii*

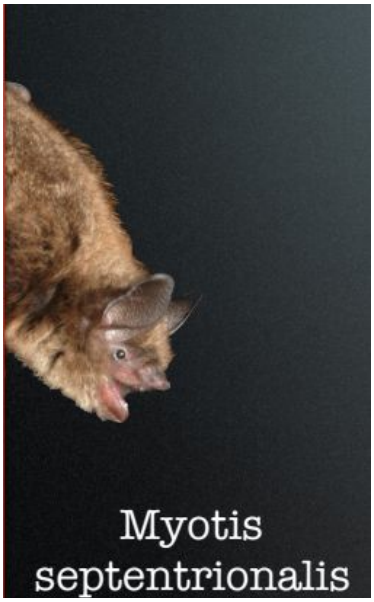
- Steeply sloped FM call shape, beginning nearly vertical then increasing in slope through body of call (unlike MYOSEP)
- F-hi will max out at 115kHz, usually not exceeding 100kHz

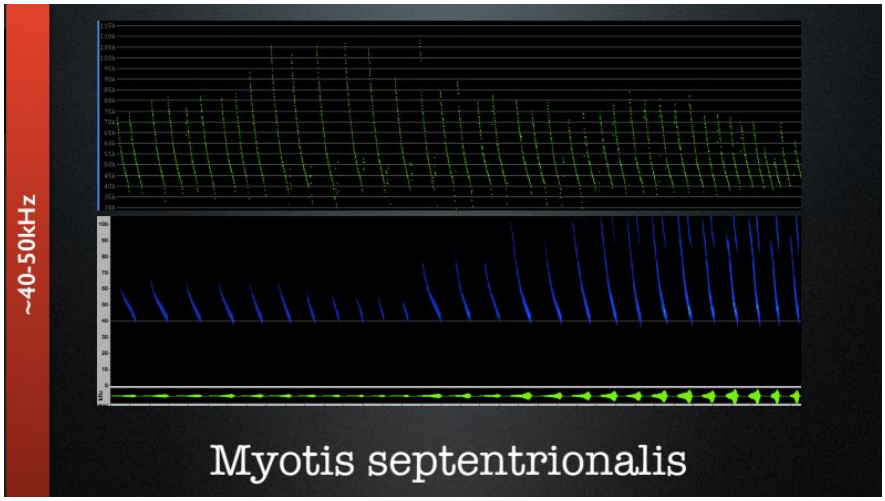




Northern Long-Eared Bat: *Myotis septentrionalis*

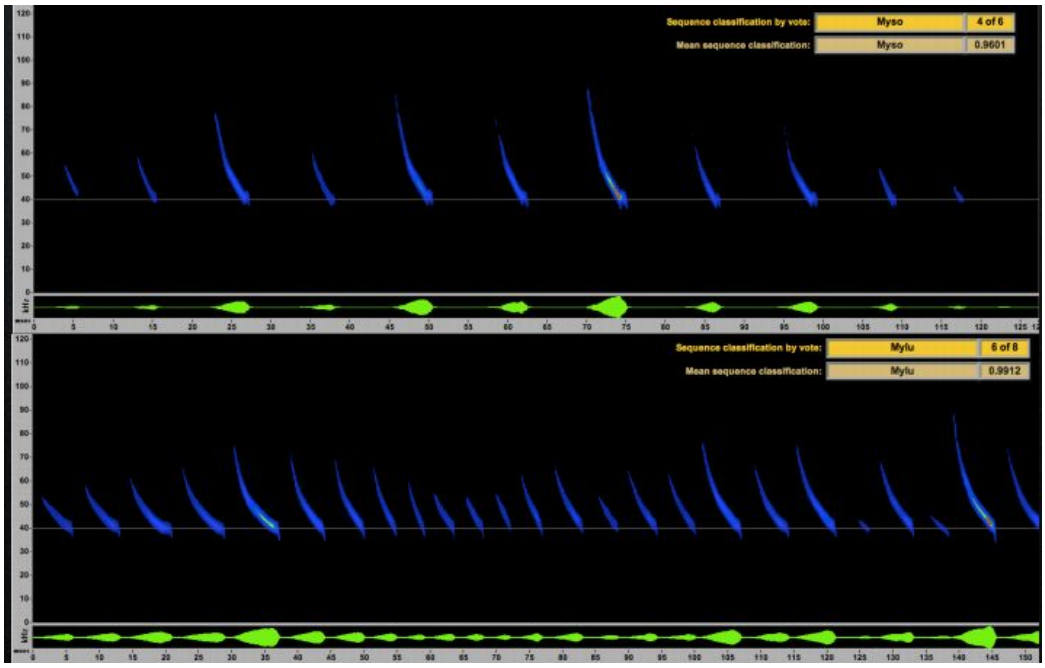
- Steeply sloped FM call shape
- Beginning and remaining mostly vertical through the body of the call, making 'toe' often difficult to determine (unlike MYOLEI)
- Fhi will max out at 120kHz



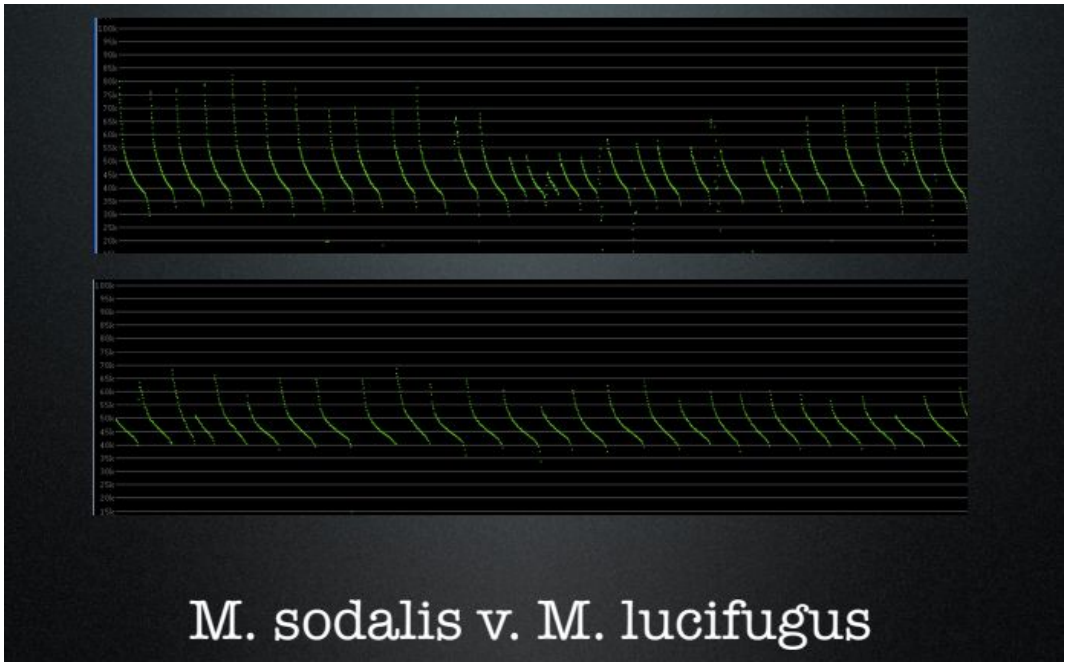


Little Brown Bat, *Myotis lucifugus* and Indiana Bat, *Myotis sodalis*

- Sometimes SonoBat technology reaches a disambiguous classification between *M. lucifugus* and *M. sodalis*, because their calls have a similar, backwards J-shaped pulse



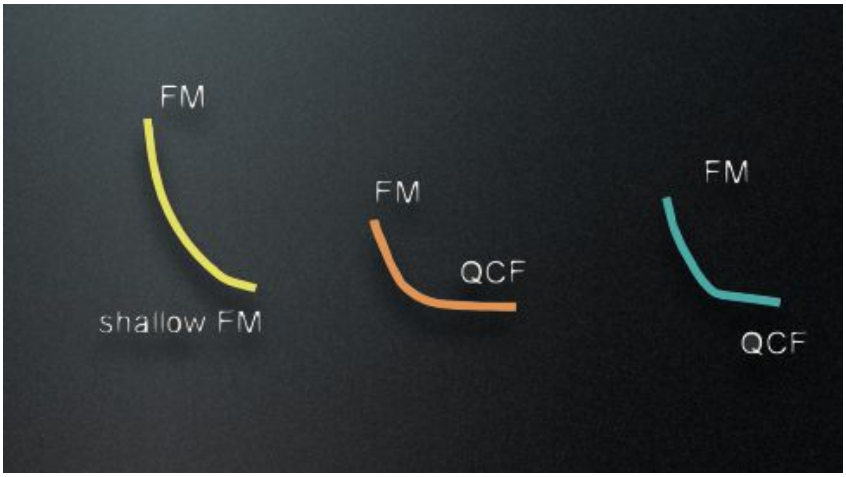
Differences in the two species' calls are noted in the top right corner, with *M. sodalis* calls on the top and *M. lucifugus* below



35-45kHz

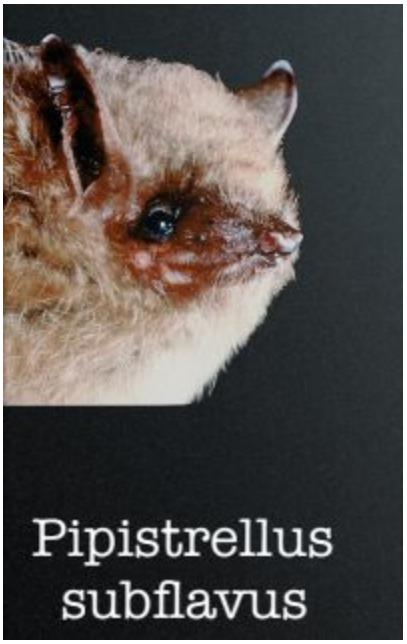
35-45kHz: shallow slope, J-shaped Bat Calls

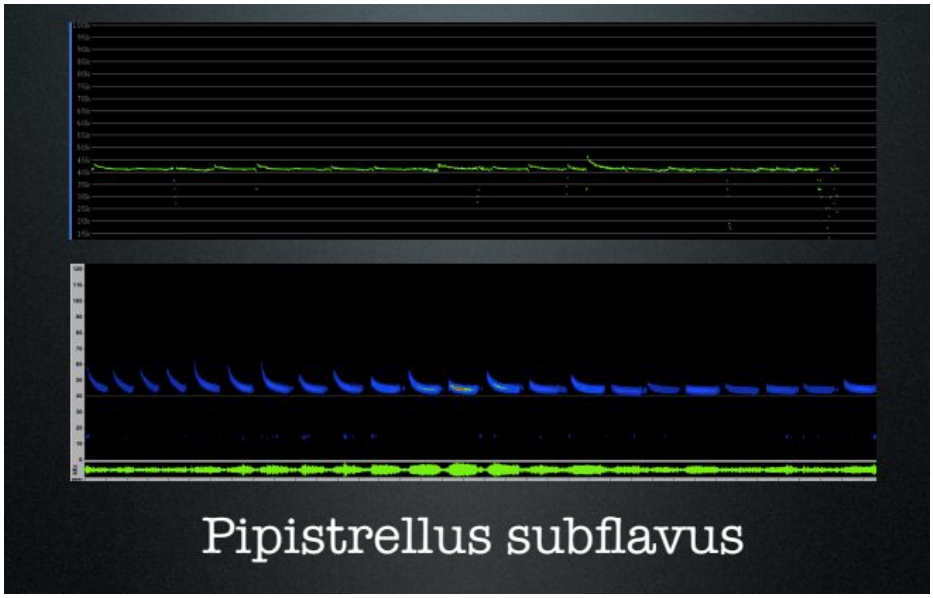
- *Pipistrellus subflavus*
- *Lasiurus borealis*



Tricolored Bat: *Pipistrellus subflavus*

- Relatively flat, or hockey stick-shaped calls with strong inflection (bi-linear) and very consistent across sequence

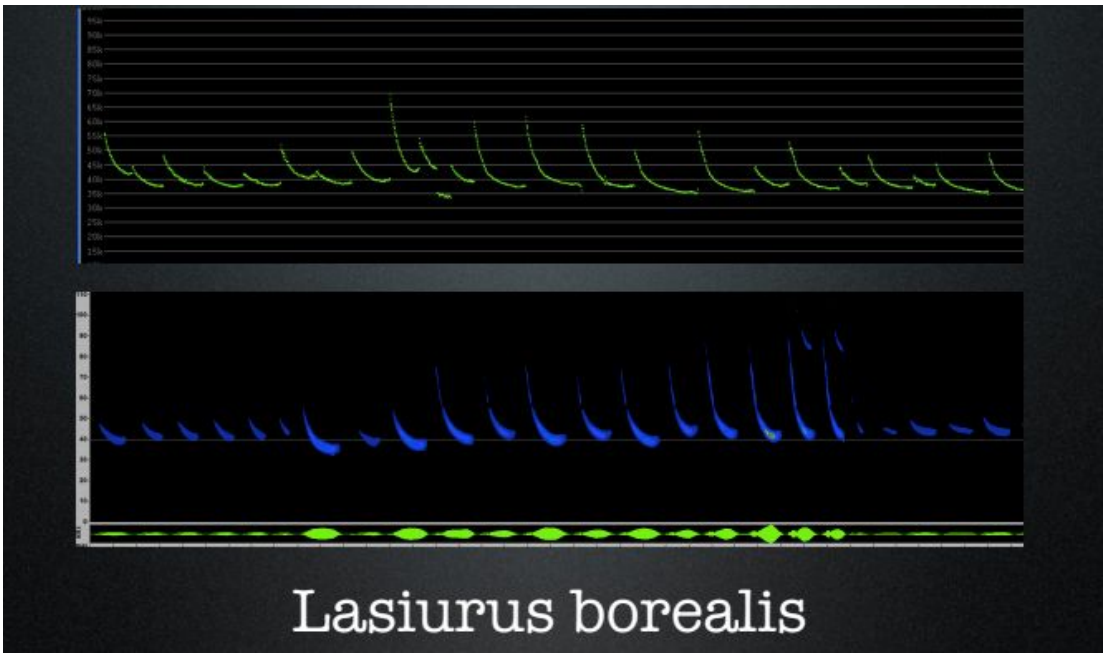




Red Bat Eastern: *Lasiurus borealis*

- Canoe-shaped, or curvy-linear, reverse J-shaped and often very inconsistent across sequence from pulse to pulse with random switching amongst Fc
- Even power distribution throughout call, building to a peak near the middle then tapering off at the end

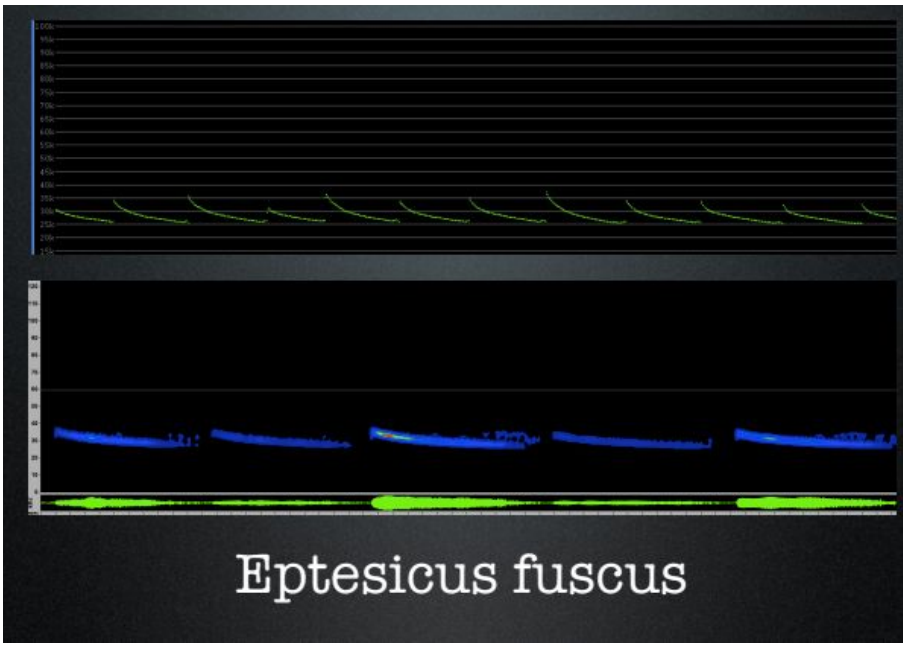
LASBOR:

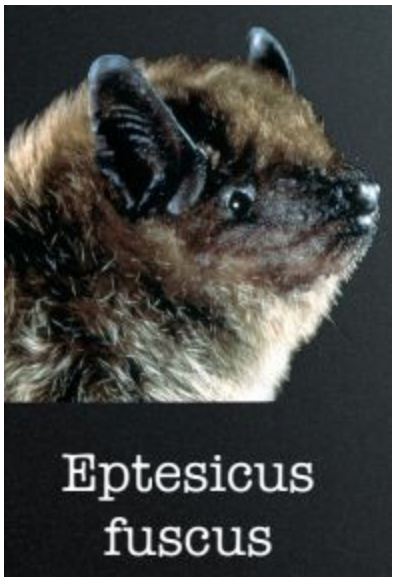


~30kHz

Big Brown Bat: *Eptesicus fuscus*

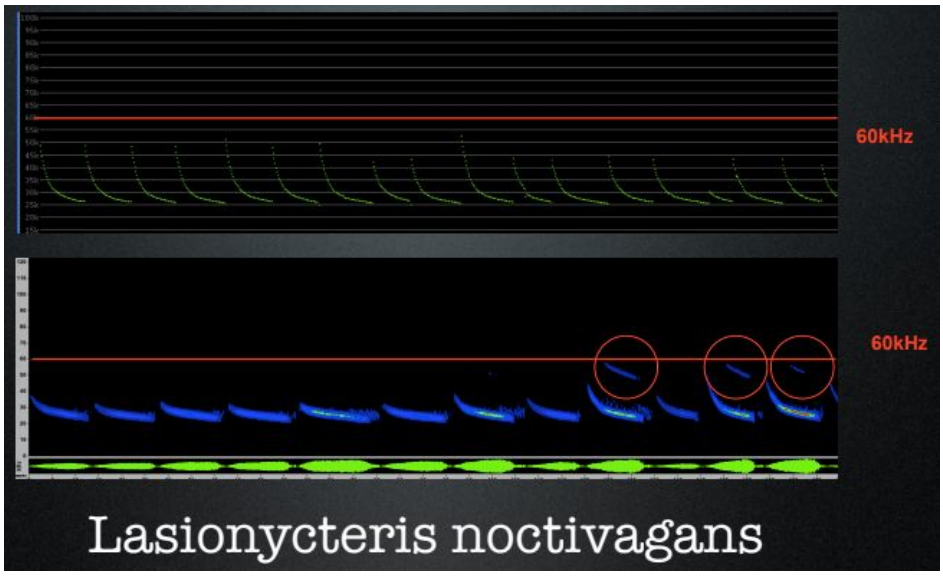
- Long calls may have some FM component, i.e. never flat
- End of calls may hook upward





Silver Haired Bat: *Lasionycteris noctivagans*

- Shorter calls reverse J-shaped, often with a distinct inflection
- Calls can become completely flat
- Calls do not exceed 50-55 kHz



<25 kHz: Shallow FM, Long Duration

Hoary Bat: *Lasiurus cinereus*

- **Fc = 15-25kHz**
- Flat, canoe-shaped, or curvilinear reverse J-shaped
- Often very inconsistent across sequence from pulse to pulse with anything random switching amongst Fc