

Flight by Night

An Introduction to Nocturnal Flight Calls

By Daniel Irons

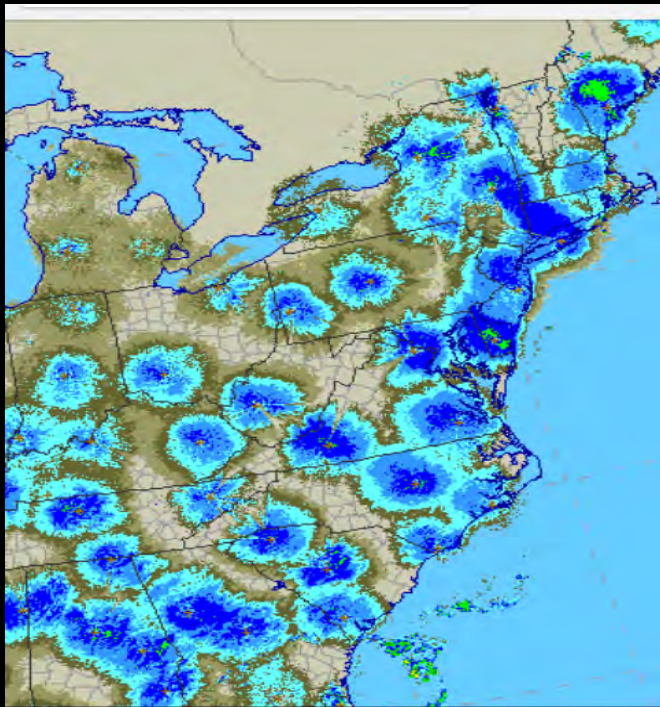


Nocturnal Flight Calls

- Information about nocturnal migrants
- Favorable weather conditions for nocturnal migrating birds
- Using radar to monitor nocturnal migrations
- Methods of recording and analyzing calls
- Basic flight call identification

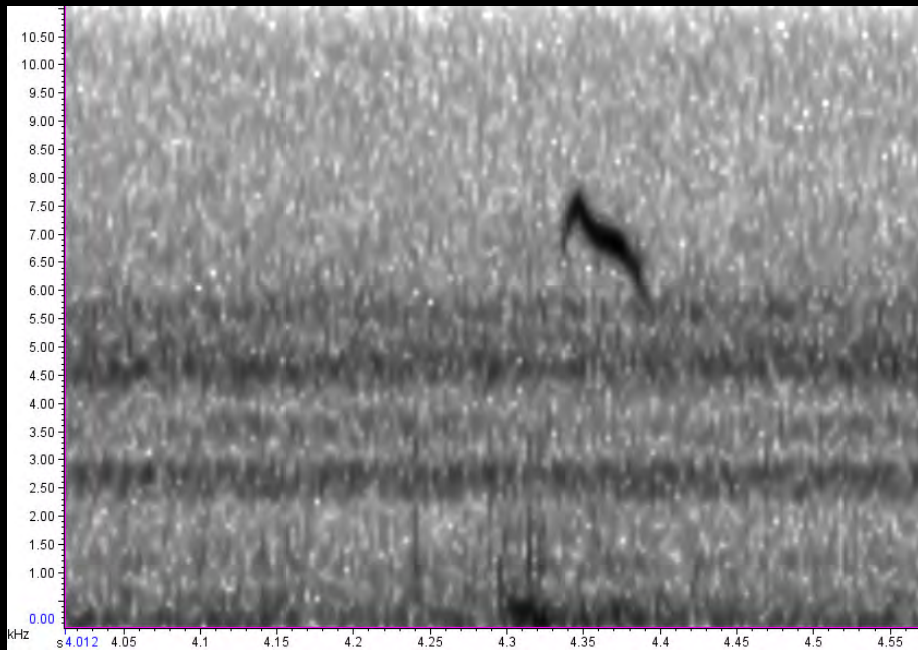


What are nocturnal migrants?



- Massive migrations of birds occur at night across the continent
- Every spring and fall thousands of birds can be heard giving flight calls while migrating overhead at a specific location in a single night

What are nocturnal flight calls?



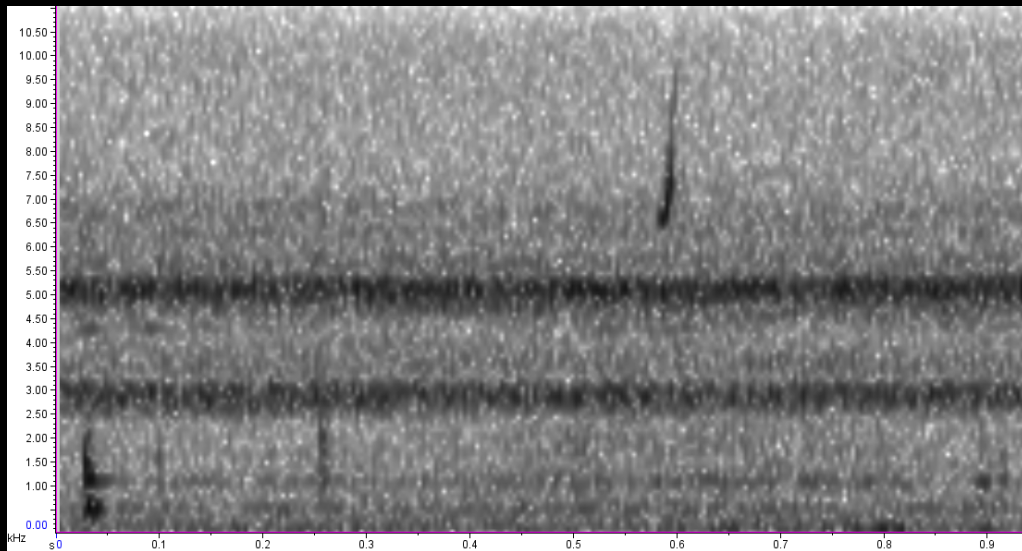
- Flight calls are the primary vocalization given in long, sustained flights such as during migration
- These calls are extremely short, some are as short as 20 milliseconds in length
- For most species, their flight call is also used in a variety of other situations, such as when perched or foraging
- In most species flight calls are often the same as the species' contact call

Why do birds migrate at night?

- Cooler so birds won't overheat
- Calmer weather conditions
- Less air turbulence
- No aerial predators (Accipiters and Falcons)



Why do birds call while migrating at night?



- To keep in contact with other migrating birds
- For navigation
- To organize flight spacing to avoid mid-air collisions
- And for echolocation

Species that participate in nocturnal migration

- Almost all migratory North American passerines migrate at night
- Most waterfowl, shorebirds, rails, herons, owls, and some terns also participate in nocturnal migration



- While almost all passerines migrate at night, not all give flight calls while engaged in nocturnal migration
- For example, vireos, wrens, orioles, and flycatchers rarely, if ever, call during nocturnal migration



Favorable weather conditions for nocturnal migrants

Spring

- Warm temperatures following a warm front
- Light winds preferably from the south or southwest/southeast
- Birds will still fly into a light headwind for example light N/NE

Fall

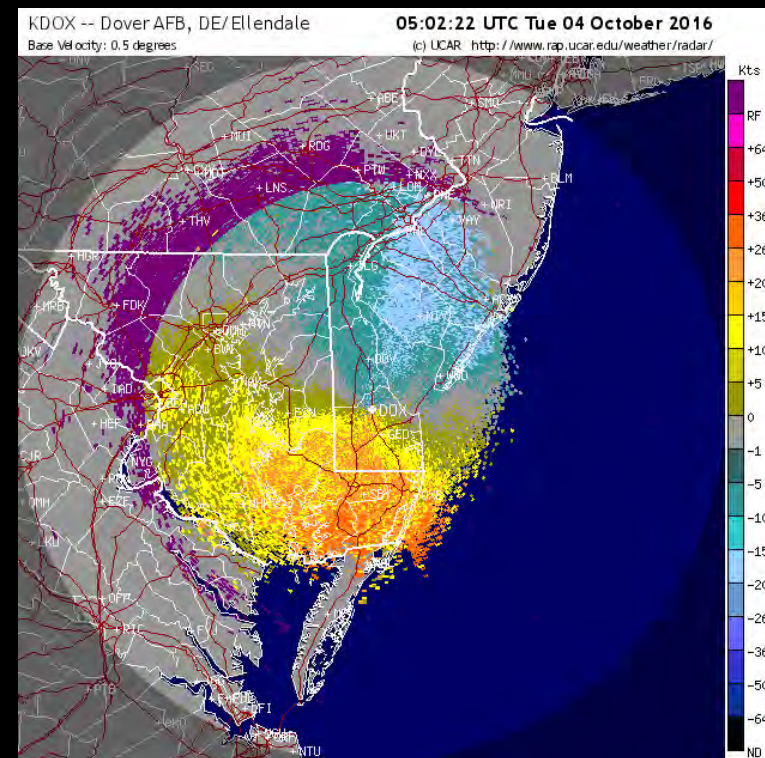
- Cooler than normal or right after a cold front
- Light winds preferably from the North/Northwest/Northeast.
- Birds will still migrate with a light head wind such as SE or S.
- Often the night after and second day after a major cold front is best

Best weather conditions for recording nocturnal flight calls

- When recording or listening to flight calls you want the birds to be flying low
- This makes hearing birds easier and makes for better quality recordings
- Nights with heavy overcast or light rain or fog are the best since migrants will fly low and call more frequently to avoid collisions and becoming disoriented
- Also clear, dark, nights with no moon are good as well

Using radar to monitor nocturnal migrants

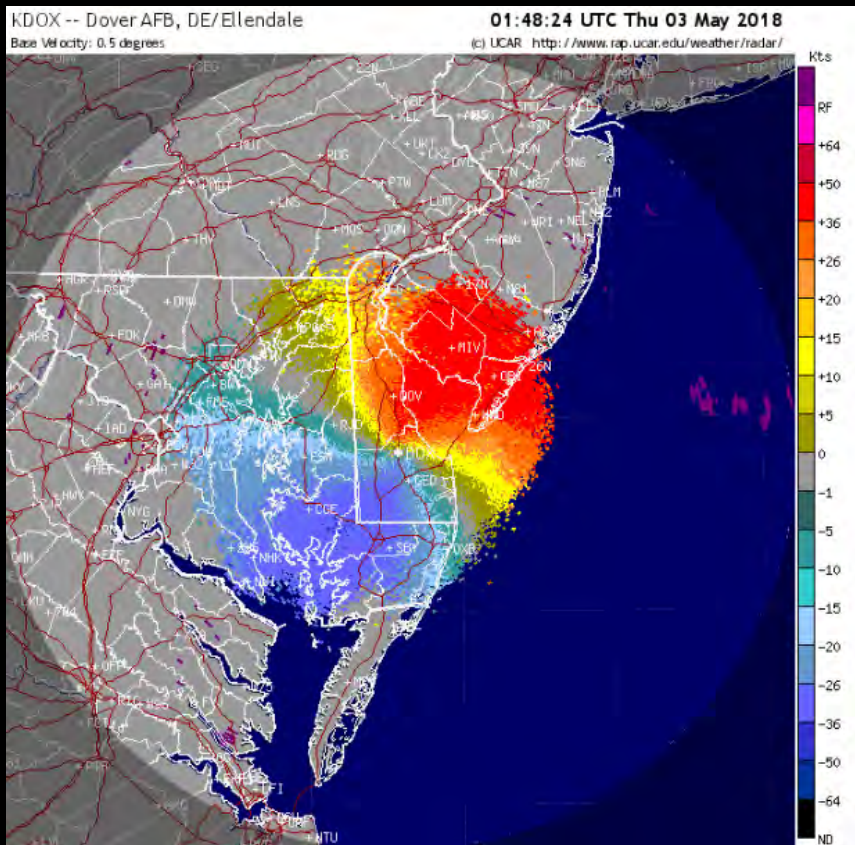
- Live unfiltered weather radar and air force base radar stations detect birds migrating at night
- Great way to gauge how intense/dense nocturnal migration is over a given area at night
- Can also determine the direction that nocturnal migrants are moving



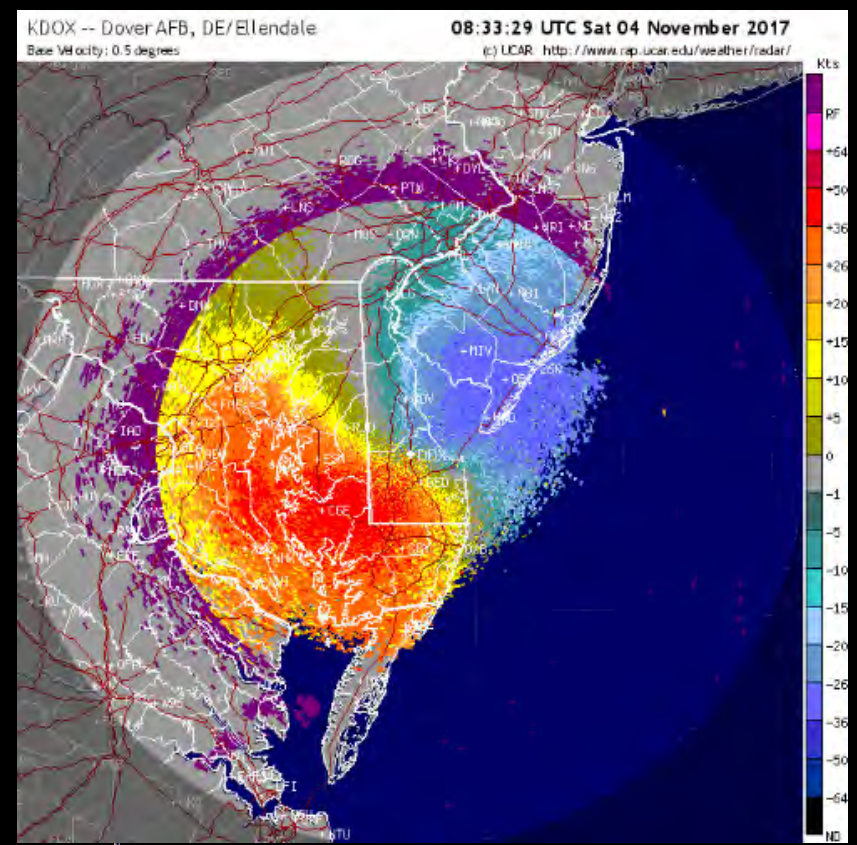
Radar pages that show nocturnal migrants

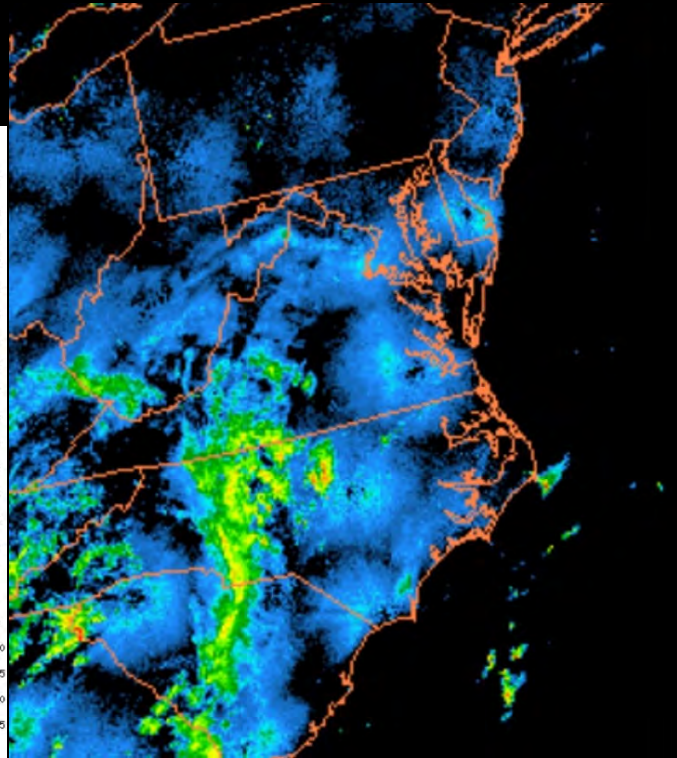
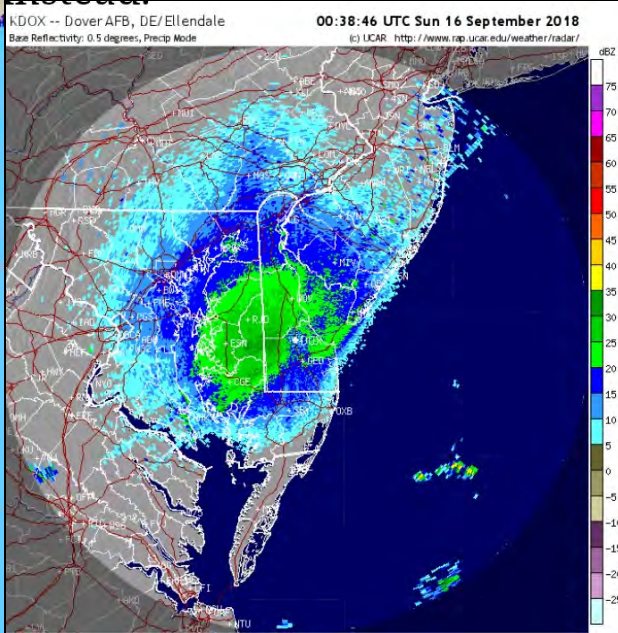
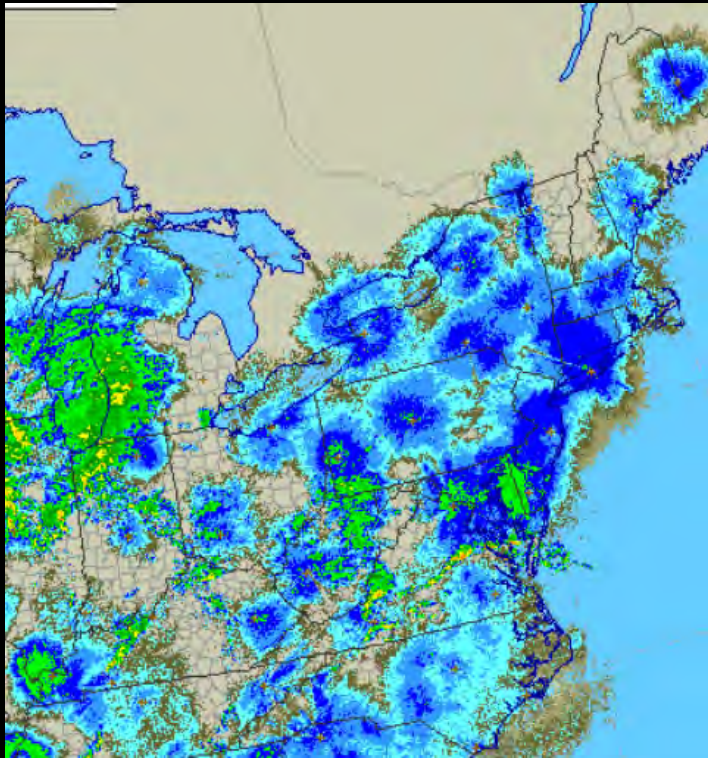
- Radar page – RAP real time weather radar page
weather.rap.ucar.edu/radar/
- NEXRAD radar images
<http://weather.rap.ucar.edu/radar/displayRad.php?icao=KUSA&prod=vel1&bkgr=gray&endDate=20150915&endTime=-1&duration=3>
- UW – Madison department of oceanic and atmospheric sciences
<http://tempest.aos.wisc.edu/radar/uscompjs.html>

Spring

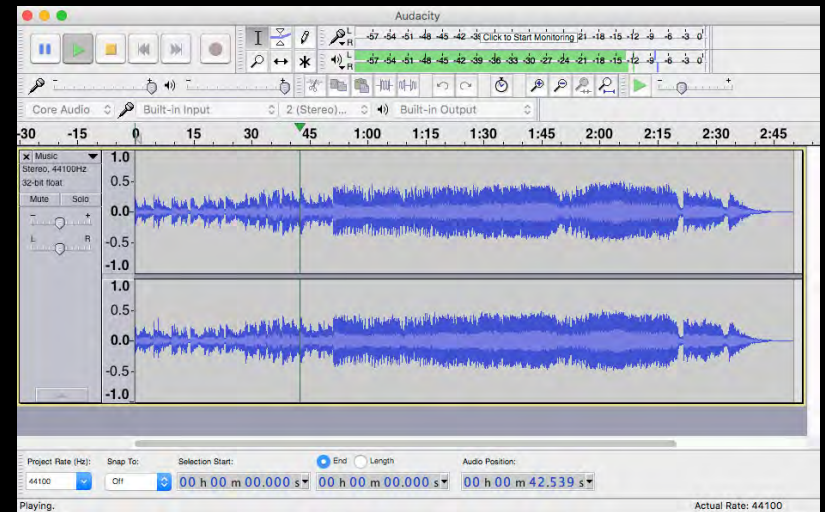
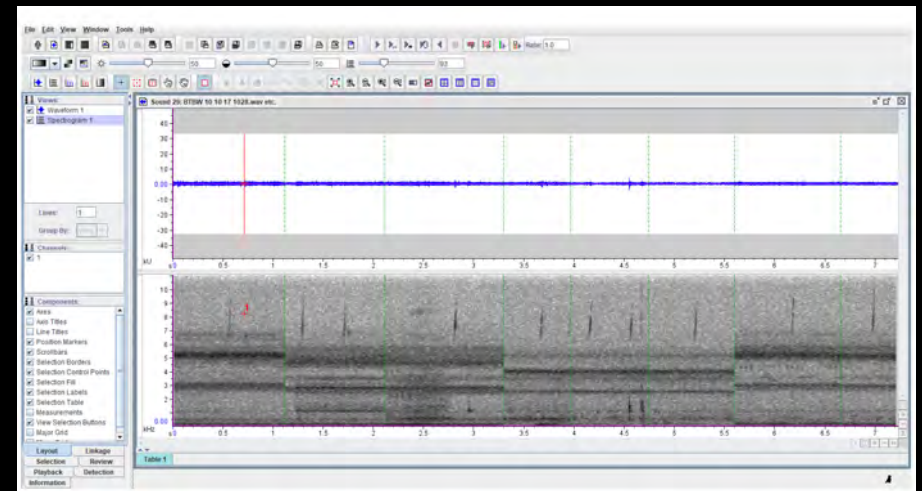


Fall





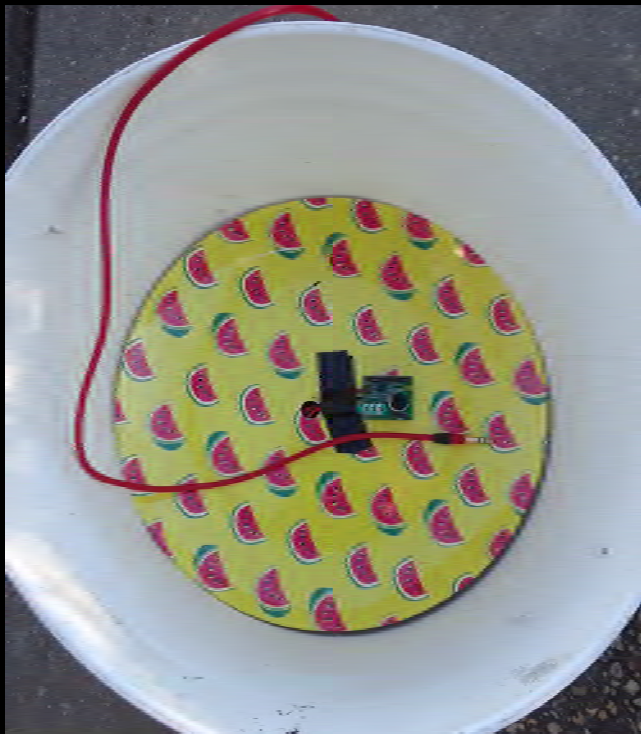
Methods of recording and analyzing flight calls



Why analyze, count, and record nocturnal migrants and their calls to begin with?

- Valuable method for gauging overall population numbers of a species
- Very little is currently known about nocturnal migrants and their behaviors
- Works towards better understand migrants and what is going on during nocturnal migration
- And its just an awesome type of birding that few people are aware of

Microphone setup options for recording flight calls



Shotgun Microphone/Parabola

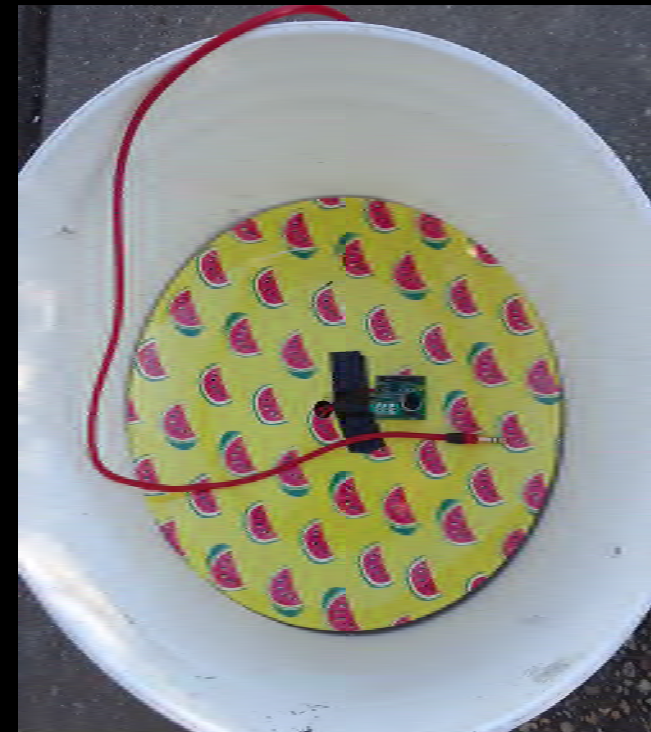


- Usually a very direct microphone with a narrow recording range (Not always good for recording flight calls)
- Plugs either directly into laptop or recording device
- Small and easy to carry around



Homemade flowerpot / bucket microphone

- Easy to make yourself
- Cheap, but produces great quality recordings
- Can find basic parts around your house (bucket or flower pot, plastic plate, audio cable)
- Microphone and battery parts available from amazon

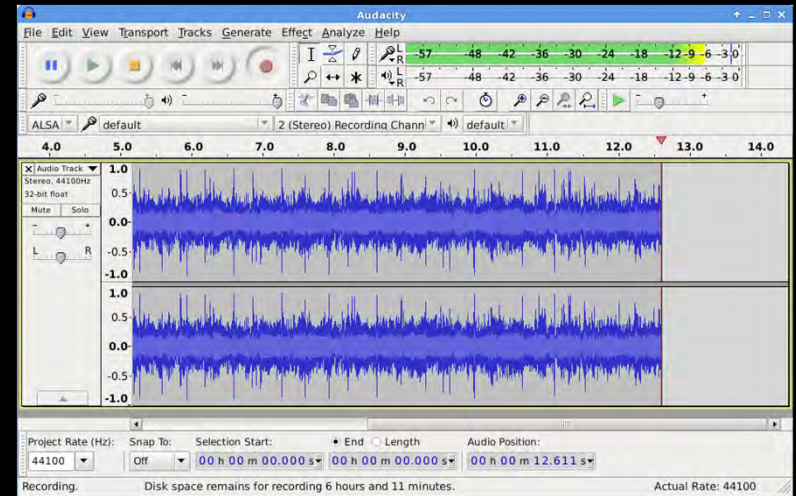
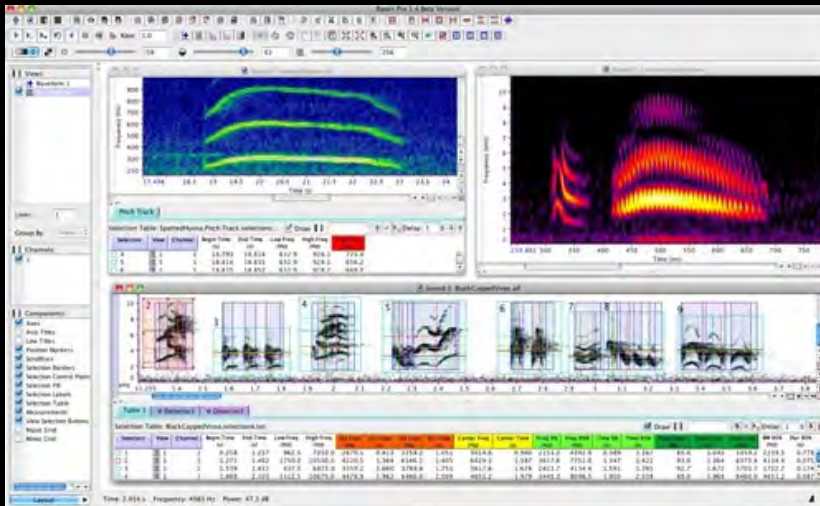


21C Microphone setup

- Can either build yourself or you can order them from Oldbird.org
- Expensive
- Very sensitive microphone that produces high quality recordings
- There is also instructions on how to build this microphone yourself on Oldbird.org



Analyzing nocturnal flight calls using spectrograms



What is a spectrogram?

- Visual representation of a sound in frequencies
- Displays how high in pitch and how long a particular call is
- Kilohertz – frequency of call
- Length of call in seconds



Why use spectrograms when recording flight calls?

- Most species' flight call has a unique shape when displayed on a spectrogram
- Makes identifications of nocturnal flight calls that sound identical to the ear easier to separate from similar species

Raven sound analysis software

- Raven is a sound analyzing computer software developed by the Cornell Lab of Ornithology
- There are two types of raven sound analysis software
- Raven lite – free but lacks some features of Pro
- Raven pro – expensive
- Best option for recording nocturnal flight calls



Audacity

- Similar to Raven
- Computer software that allows you to record, analyze, and play sounds on spectrograms
- Free



Putting the entire recording and analysis system together and how to use it

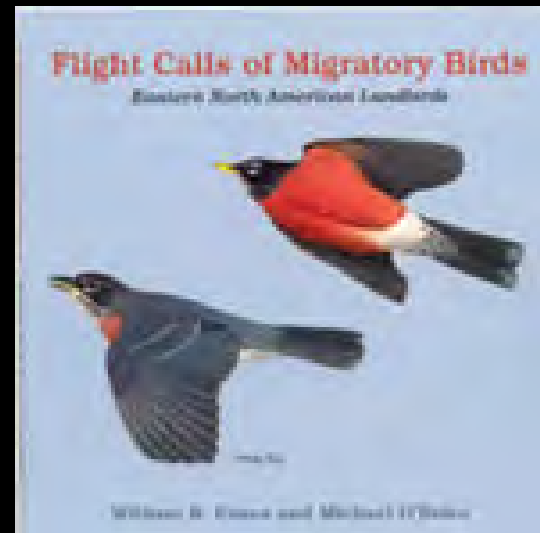
- Place microphone outside standing upright with no obstruction overhead
- Once you have a working microphone setup and some type of sound analysis software installed on your computer, plug the audio cable from the Mic into the microphone jack of computer.
- Open sound analyzing program (Raven pro for example) and record live to computer
- For Raven pro to cut out live recording while recording, hit Ctrl + c Ctrl + n Ctrl + v

Identifying flight calls of nocturnal migrants

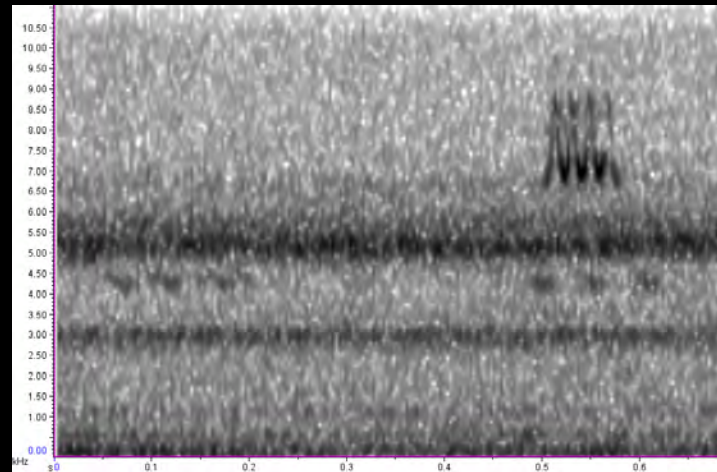
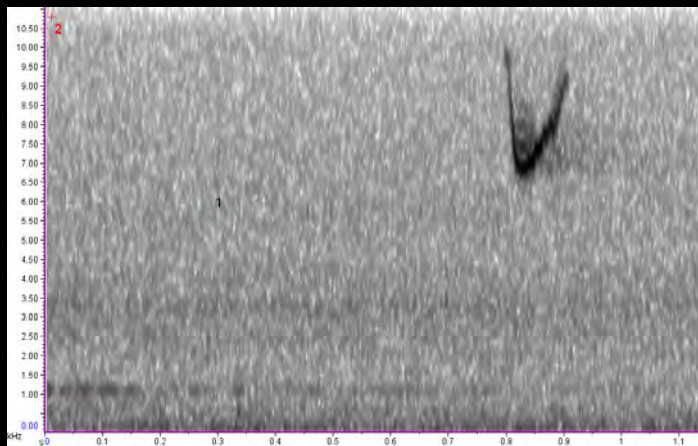
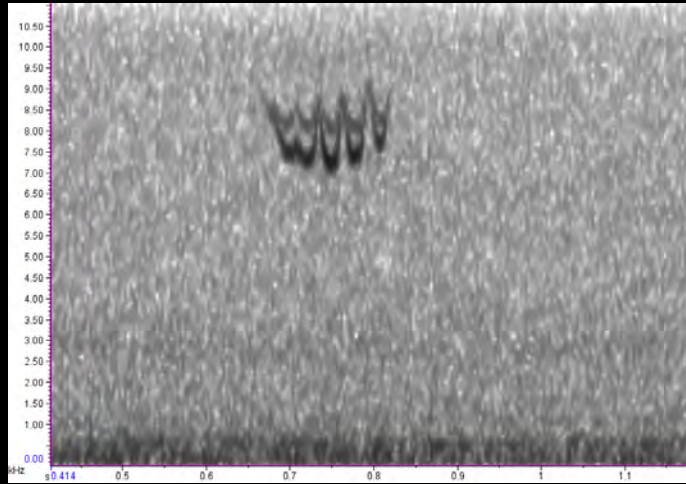
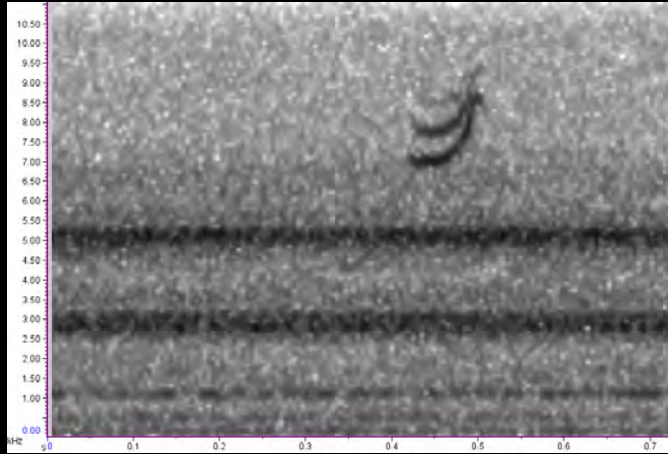
- Can be very difficult
- Most species' flight calls are extremely variable
- Some species' calls overlap and are best left identified in categories such as warbler sp. or sparrow sp. or even passerine sp. If unsure which family
- Example 'ZEEP' complex BLBW, YEWA, CONW, MAWA, BLPW, WEWA, KEWA, waterthrushes and most ammodramus sparrows

How to learn nocturnal flight calls

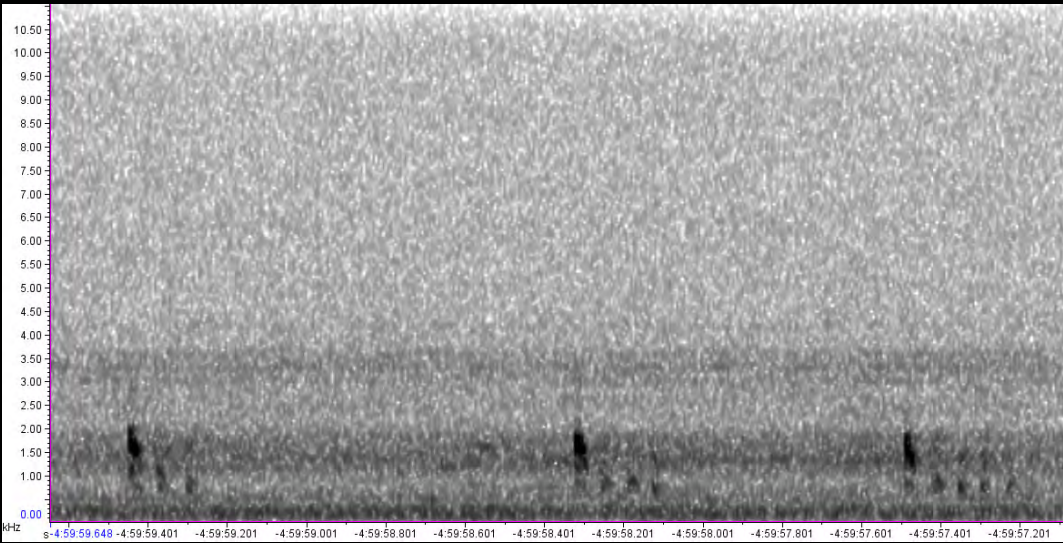
- Get out and bird alot especially around mixed warbler flocks in the fall
- Warblers such as BAWW and AMRE frequently give flight calls while foraging together this gives you a chance to become familiar with the call
- CD of Flight Calls for Migratory Birds of Eastern North America: by Michael O'Brien and Bill Evans
- Accessible free online through Oldbird.org
- Contains recordings/spectrograms and descriptions of nocturnal flight calls



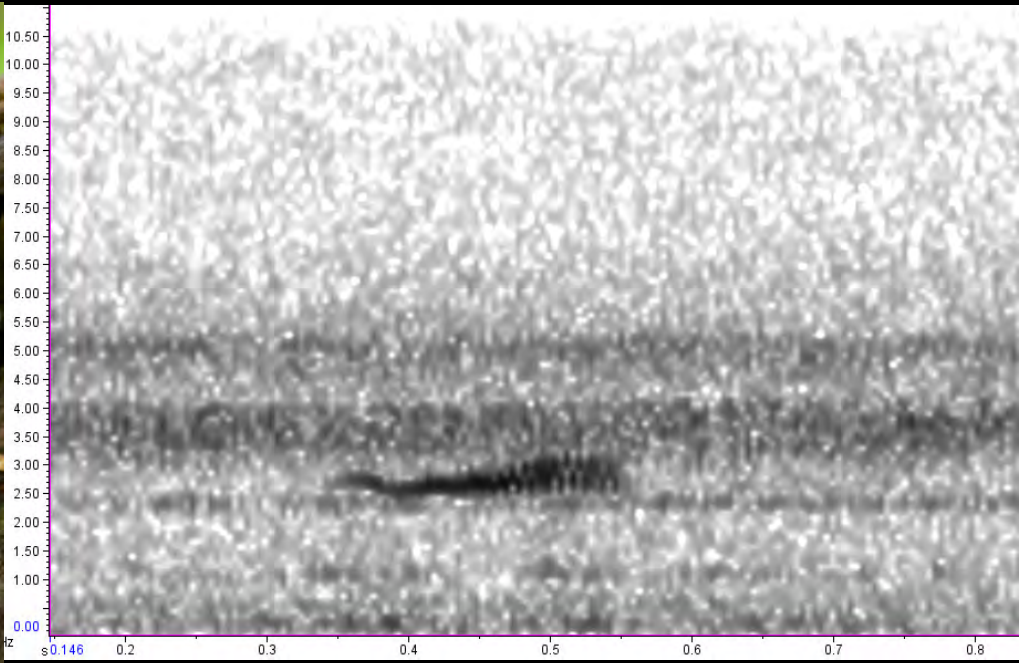
Identifications of some common but distinctive nocturnal migrants



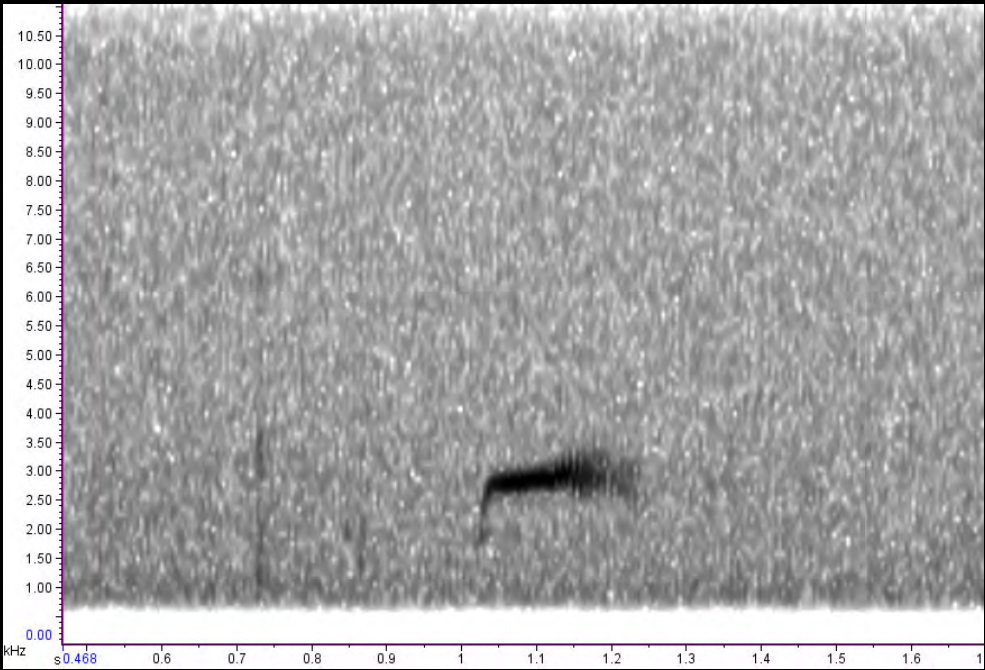
Yellow billed Cuckoo



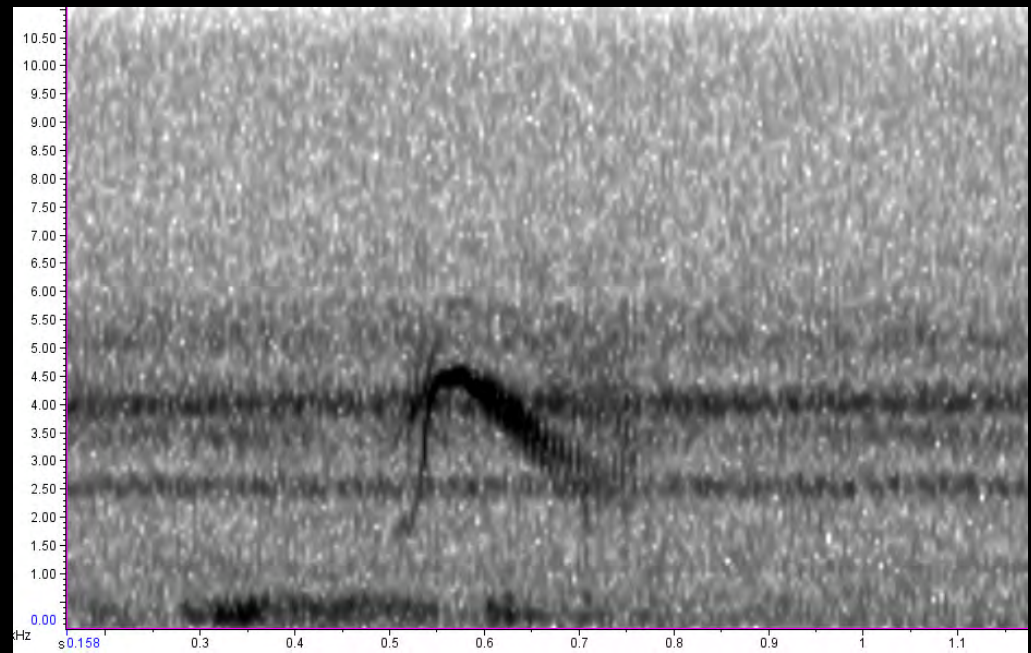
Veery



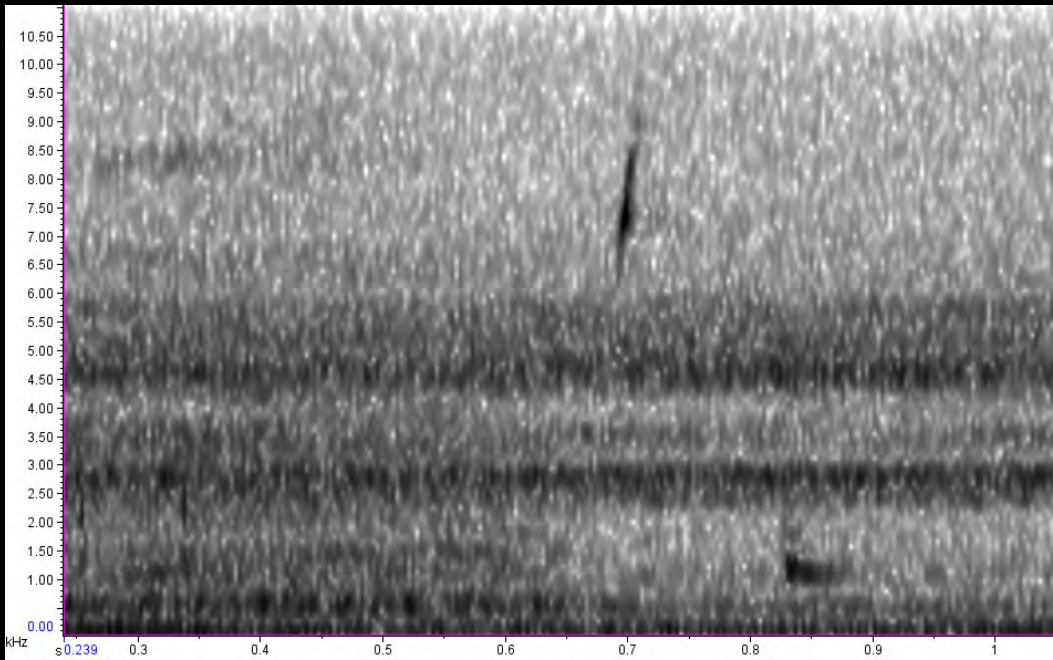
Swainson's Thrush



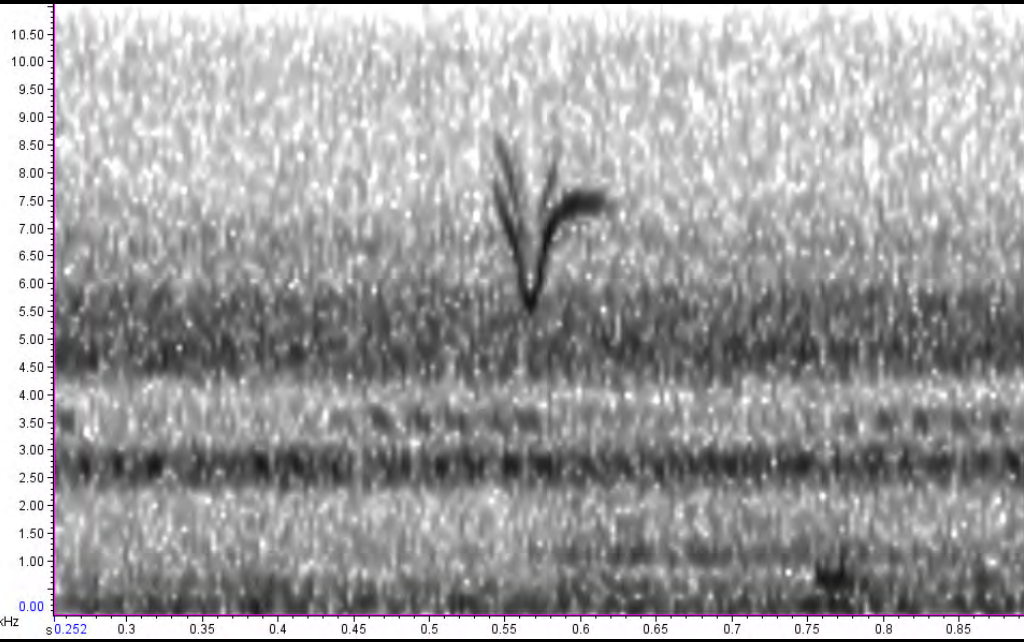
Gray cheeked Thrush



Black throated blue Warbler



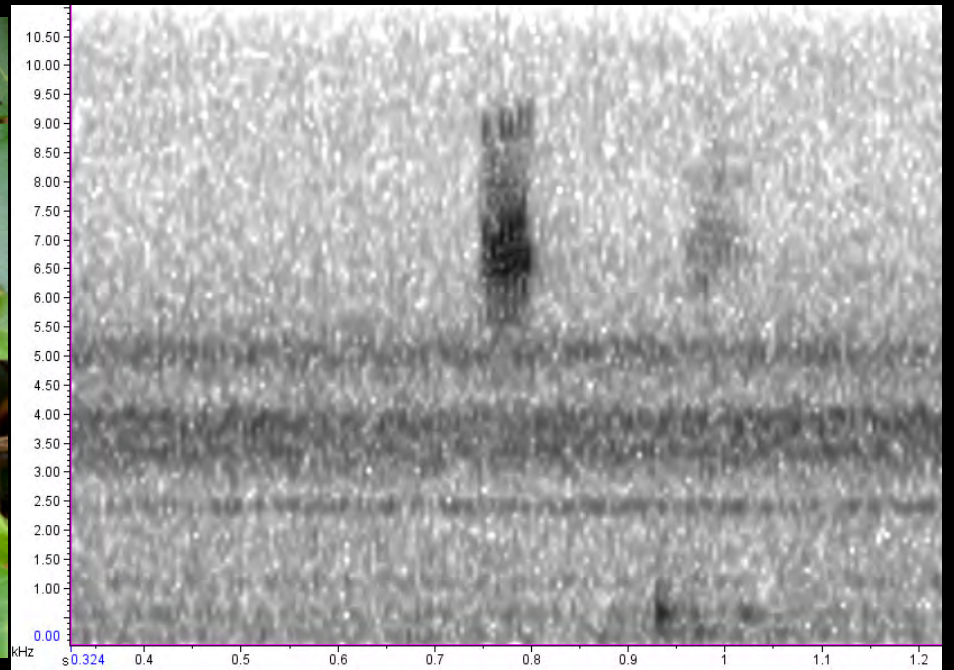
American Redstart



Ovenbird



Common Yellowthroat



Chipping Sparrow



Savannah Sparrow



White throated Sparrow



Conclusion

- Information about nocturnal migrants
- Favorable weather conditions for nocturnal migrating birds
- Using radar to monitor nocturnal migrations
- Some methods of recording and analyzing calls
- Basic flight call identification



Feel free to talk with me
anytime today or contact me
with any questions or for
additional information

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References

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