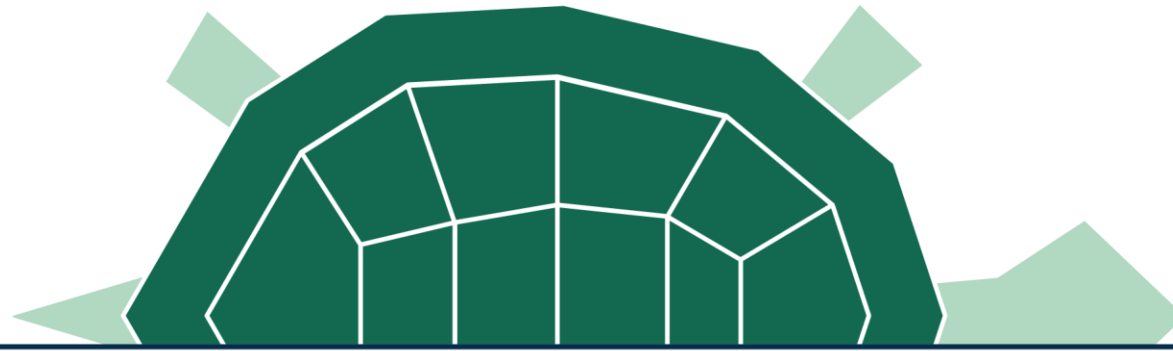


# Bat Acoustic Monitoring on the Bass Islands of Lake Erie

Amy B. Alford, PhD

Research Coordinator and Board Chair

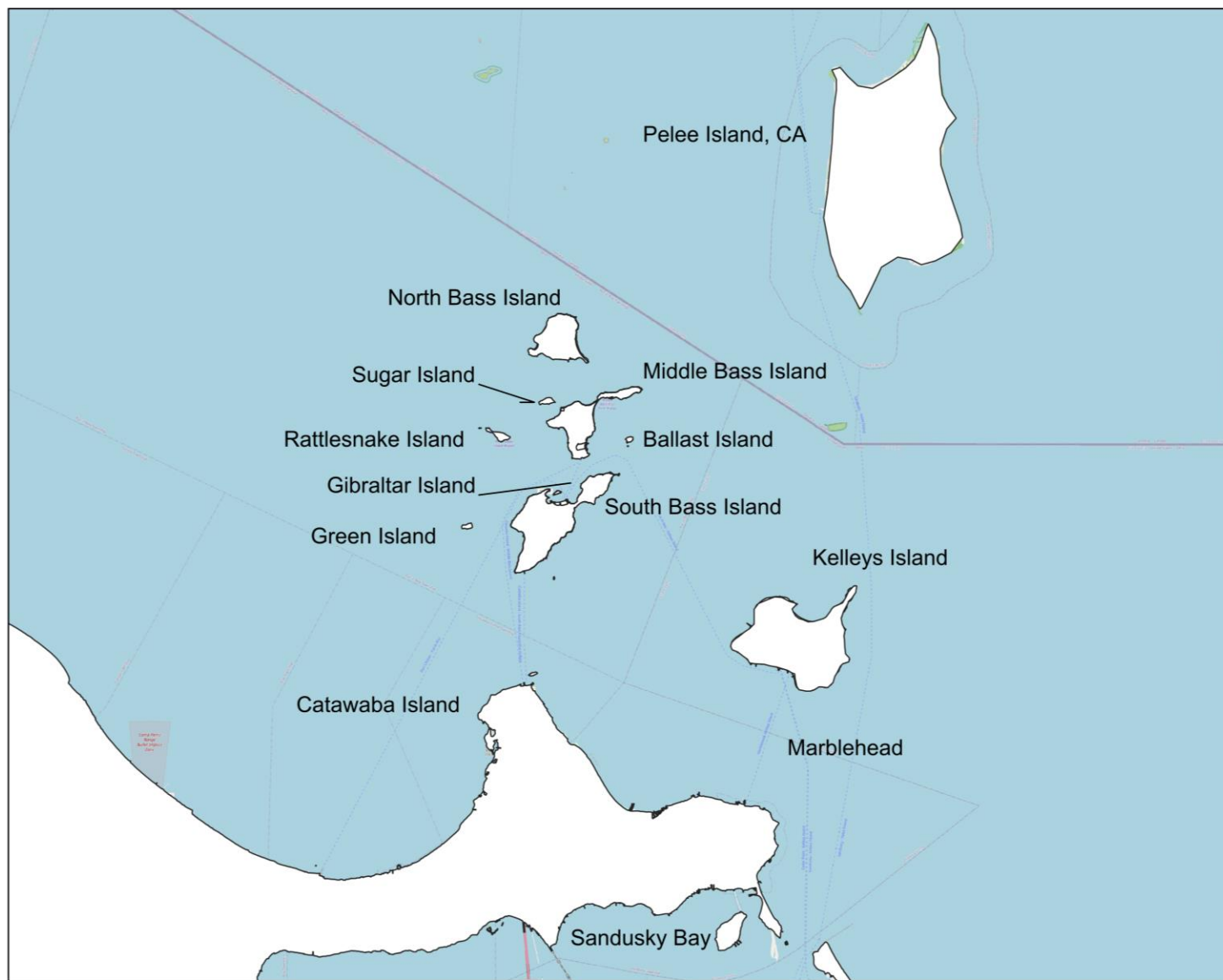


---

LAKE ERIE ISLANDS  
NATURE & WILDLIFE CENTER

---

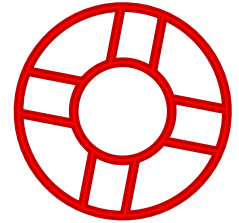








Don't hate me.....I'm  
a fish head.



I'm here for help!!!







Renee Fultz – Director  
Fultz.renee@gmail.com



Emily Beal – Assistant Director  
Road Scholar Coordinator  
Nature Camp Coordinator



Hayley Rinearson – Education  
and Outreach Coordinator

**The mission of the Lake Erie Islands Nature and Wildlife Center is  
to promote conservation of and education about the flora, fauna  
and lands of the Lake Erie Islands ecosystems**





# *Anchorage Daily News* **a rare bird in the world of waterfowl collectors**

HEIDECKER  
 spondent

en it comes to a waterbird in nuptial plumage, you might say Stan Wulkowicz is a sitting duck.  
 tuned in to the call of the wild spend time, money and energy of the perfect specimen for his gathered wildlife.  
 e didn't set out to start a Wulkowicz is now so dedicated to it he goes Outside to capture ous to Alaska when they're and legal to hunt (there) in the

s collection includes 32 ducks including some from Kodiak, the North Dakota and the Yucatan, in

ens vary from common mallards to the Ship Creek area, to birds like the Mexican duck, Mexico and a few southwest- included are the wood duck t, rare in Alaska.

s Wulkowicz could have ac- to home, but instead went to ia, Ohio or North Dakota to "I like to get them in 'nuptial en they're more colorful," he



Stan Wulkowicz shows off some of the 32 ducks and geese in his collection.

Anchorage Daily News/Ron Smith

explains.

Nuptial plumage, the development of more colorful feathers that's associated with mating season, occurs in the spring. Alaska hunting season opens in the fall.

Among those he's sought elsewhere are the widgeon, the pintail, the blue-winged teal and the shoveler.

So far, Wulkowicz says, he's just concentrating on North American species. After he's completed that collection, he might go on to South American ducks and geese.

Wulkowicz began his collection about eight years ago, in order to supplement his wildlife lessons for biology students at West High, where he teaches.

He'd intended to keep the ducks at school, but lack of space for his growing collection resulted in a "wildlife den" in the Wulkowicz home.

At first, he collected only the drakes, but then he decided to collect hens, too. Sometimes males and females of the same species look entirely different.

Wulkowicz and his wife, Joan, often have birds in tow when they leave for work. She teaches first grade at Lake Otis Elementary School and likes to supplement her lessons plans with the stuffed fowl, too.

See Page M-2, WATERFOWL

## **Waterfowl collector displays birds in full bloom**

from Page M-1

izing that even young get very ing the different Wulkowicz says. teaches her class dlife in the win- arranges a field o Creek in the e the children de- tinguishing be- species of ducks r husband says.

tudents, too, the on a new mean-

ing when they can see what they're studying about. "A picture in a book is one thing, but the real critter is a different thing," he says.

Among the Alaska ducks in the collection, Wulkowicz can show his students the Barrow's golden-eye, three species of scoters, a harlequin and an old squaw sea-duck. All were captured on Kodiak.

His display case, about 10 feet long and over 5 feet tall, takes up almost a whole wall

in the room. Custom-built by a local company, the cost was around \$2,000, he says. He anticipates adding another display case in the future; he has five pairs of ducks of different species being prepared by his taxidermist.

Also in the Wulkowicz den are mounted salmon in both spawning and marine states, and mounted caribou and mountain goat trophies.

Although he didn't start collecting his wildlife speci-

mens with the intention of displaying them at home, Wulkowicz's private collection has come to represent a synthesis of his work and his hobbies, he says. "I like to fish and hunt, and I love to just watch birds," he says.

So his vacations become more than recreational hunting and fishing trips, because the next catch could end up in his growing wildlife museum, with visits to at least two Anchorage schools.



- Stan Wulkowicz: South Bass Islander
- With Wife Joey, Teachers in Anchorage
- Hunters and trappers
- Return to Island in 1992



## ALASKAN BIRD HOUSE EST. 1993







## Lake Erie Islands Nature and Wildlife Center

EST 2008







Over 100 species  
of North  
American Wildlife



10.29.2007







Major renovations in 2020-2021







Engaging local artists



Community Patio





# Wildlife Window & Observation Garden





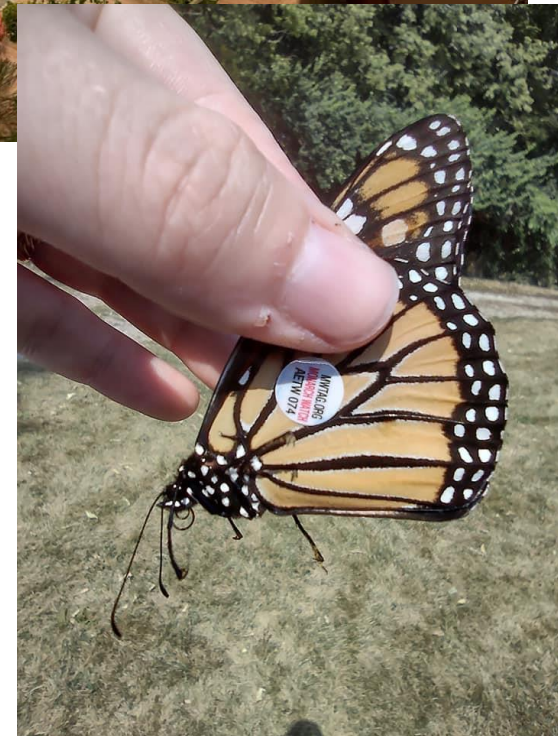
## Ever growing live animal displays



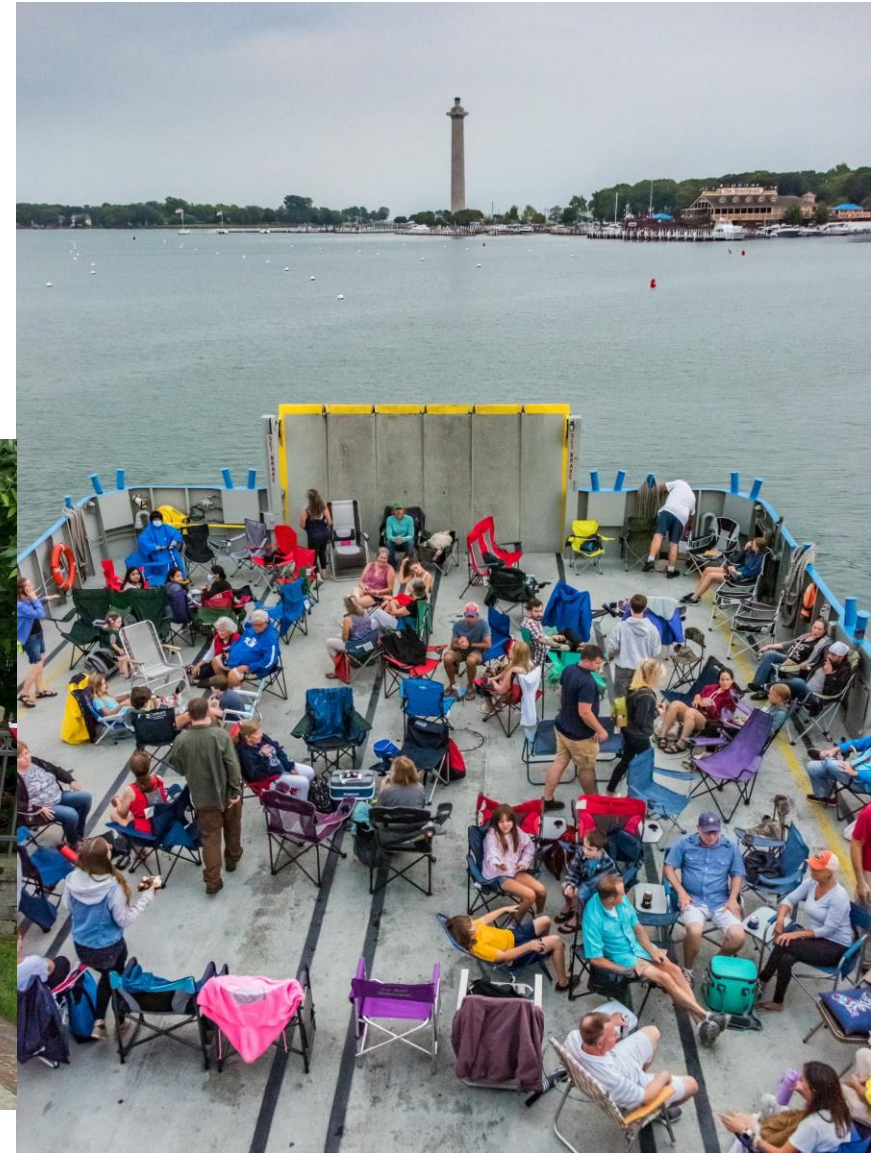




Year-round free and paid programming







A strong community presence







Nature Camp to  
engage and promote  
stewardship





# ROAD SCHOLAR<sup>®</sup>





Multiple week-long all-inclusive birding excursions for adults





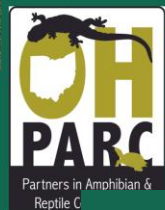
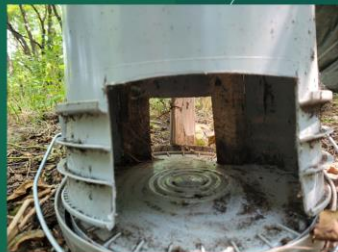
## Extensive regional variation in the phenology of insects and their response to temperature across North America

Peter O. Dunn , Insiyaa Ahmed, Elise Armstrong, Natasha Barlow, Malcolm A. Barnard, Marc Bélisle, Thomas J. Benson, Lisha L. Berzins, Chloe K. Boynton, T. Anders Brown, Melissa Cady ... [See all authors](#) 

## Participation in Global Research





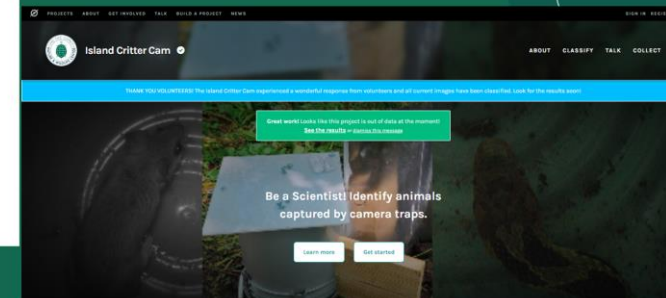


ADAPTED-HUNT DRIFT FENCE TECHNIQUE  
(AHDIFT)

MAY 2022: INSTALLED ON MIDDLE BASS ISLAND



ISLAND CRITTER CAM



ZOONIVERSE

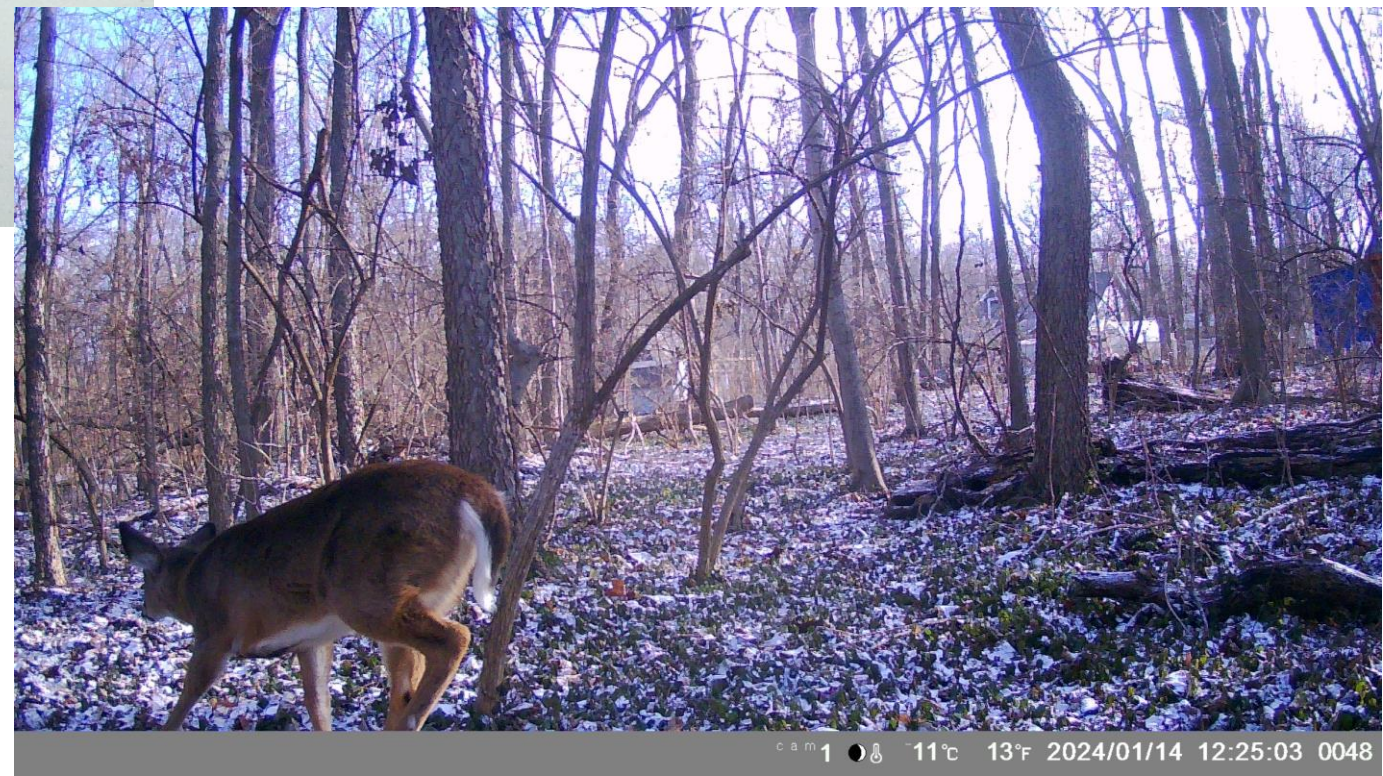
CONTRIBUTORY COMMUNITY SCIENCE



Research Grants to  
monitoring Lake Erie  
Watersnake and  
develop crowdsourcing  
applications







# Community Camera Trap Array





# Multi-group support to begin Bat Monitoring on the Bass Islands

- 13 locations
  - Closed overstory
  - Open fields
  - Urban
  - Near and far from shoreline
- 3 Islands
  - Gibraltar
  - Middle Bass
  - South Bass
- 2 years
  - Spatial and Temporal study in 2023
  - Spatial study in 2024

258 site/nights  
of call data

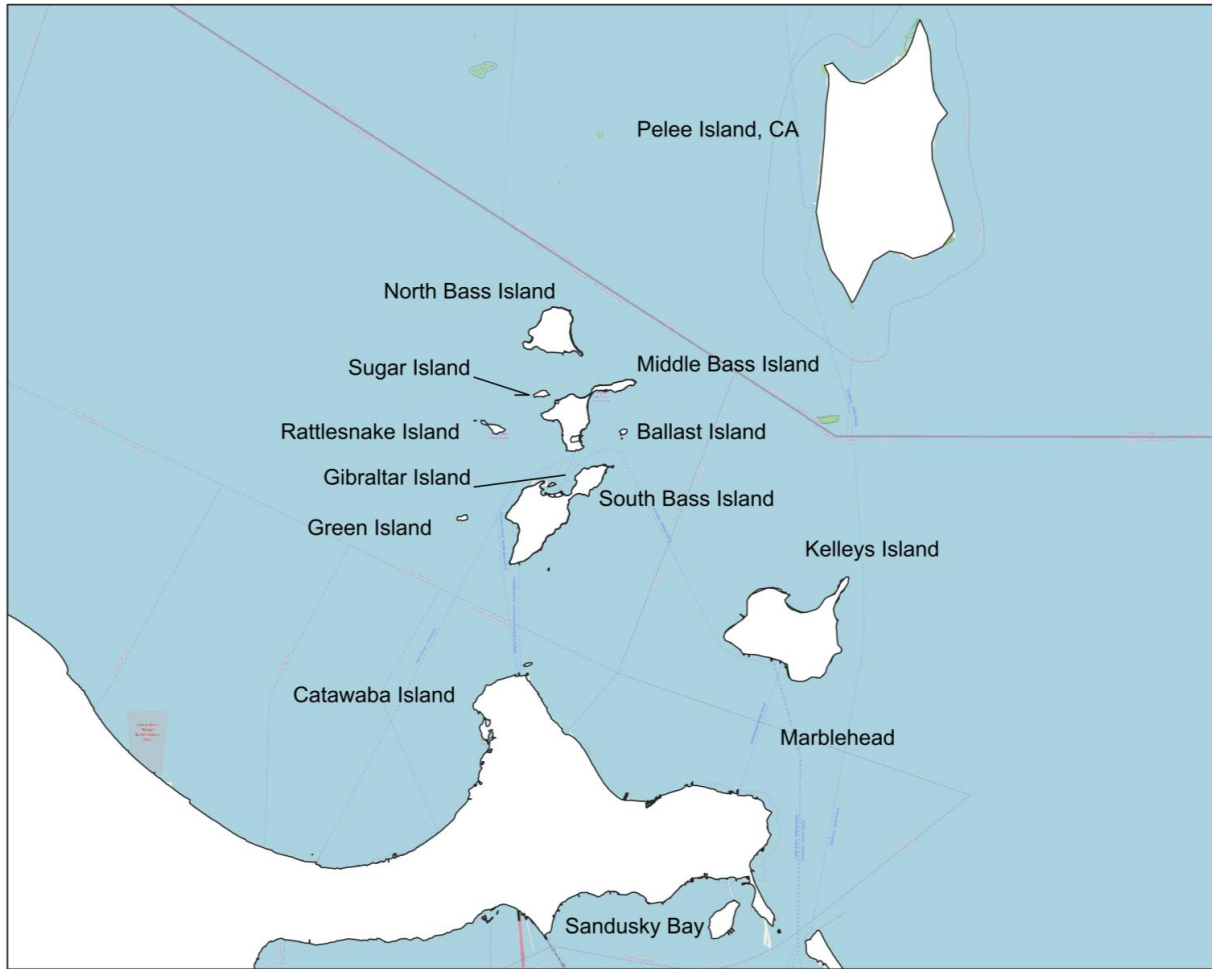


THE OHIO STATE UNIVERSITY

COLLEGE OF FOOD, AGRICULTURAL,  
AND ENVIRONMENTAL SCIENCES



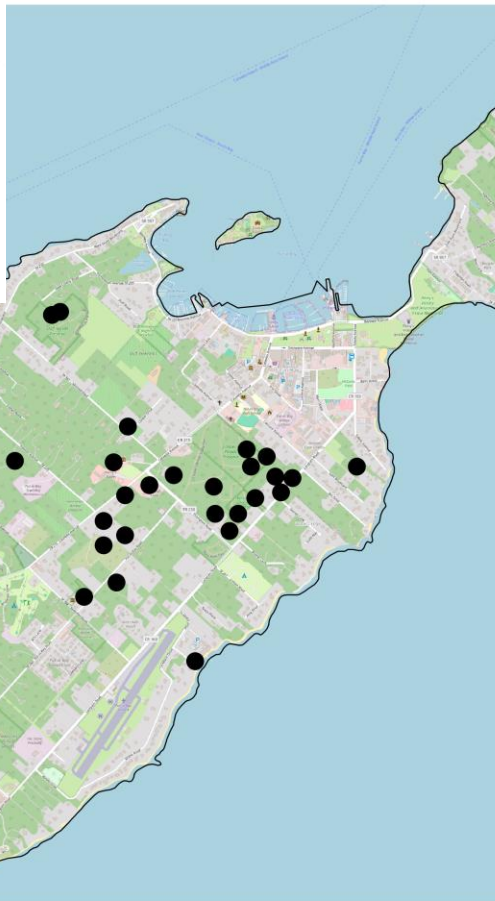
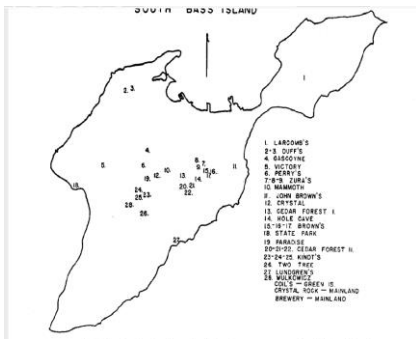




Relied heavily on the network of Parks established by the Lake Erie Islands Conservancy and the Put-in-Bay Parks Department







- Mix of Urban and Deciduous Forest
- Network of 'caves'







2023 – our first attempt atop Cookes Castle on Gibraltar Island!

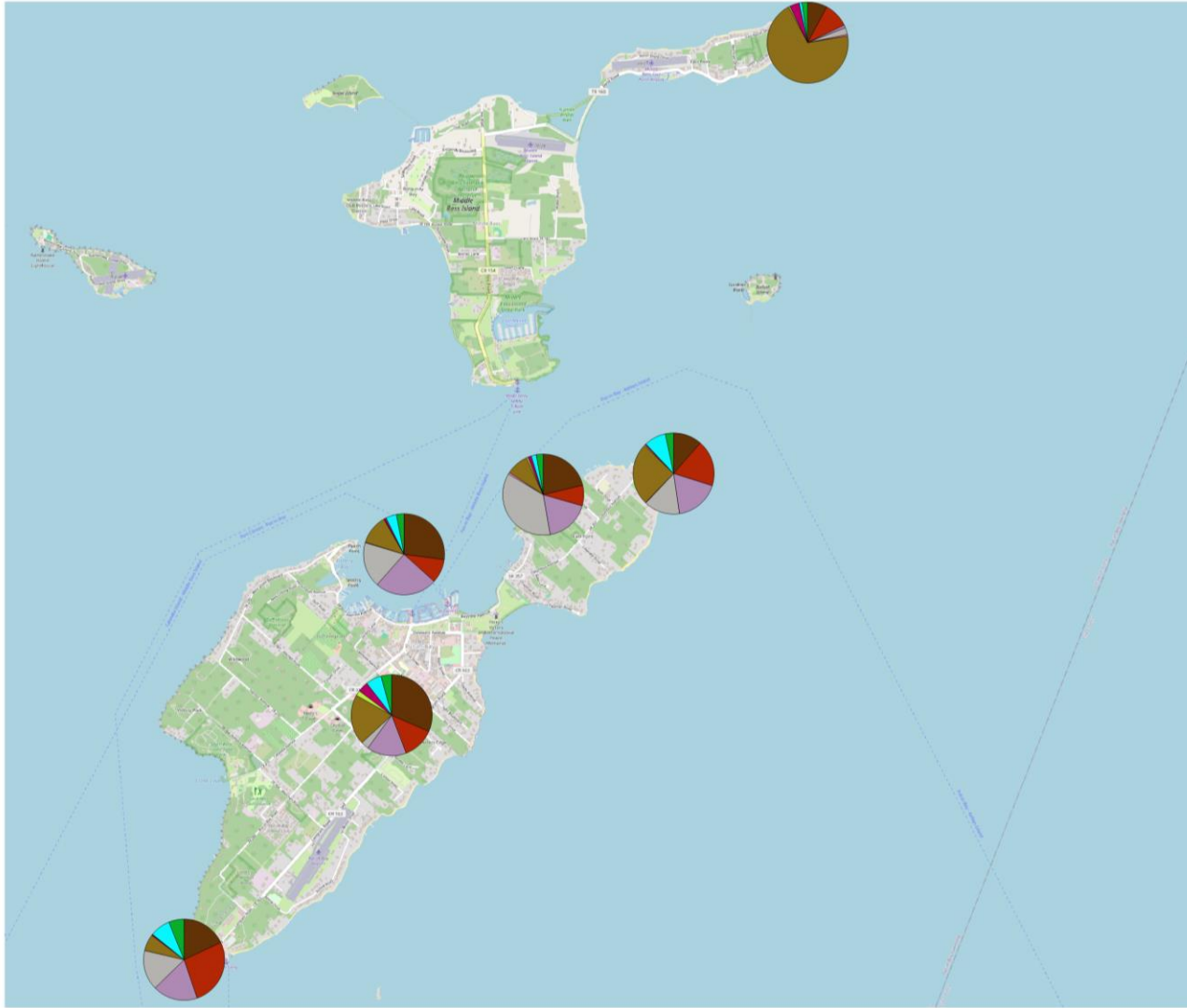


Juan Flores – Stone Lab REU student





## 2023 Summer Spatial Study



- Mix of Urban and Deciduous Forest
- Network of 'caves'

- 'Liberal' classifier in Kaleidoscope Pro
- 29 site/nights
- 4079 total calls ID'd
  - 5 - Eastern Small-footed
  - 11 - Northern Long-eared
  - 32 - Indiana

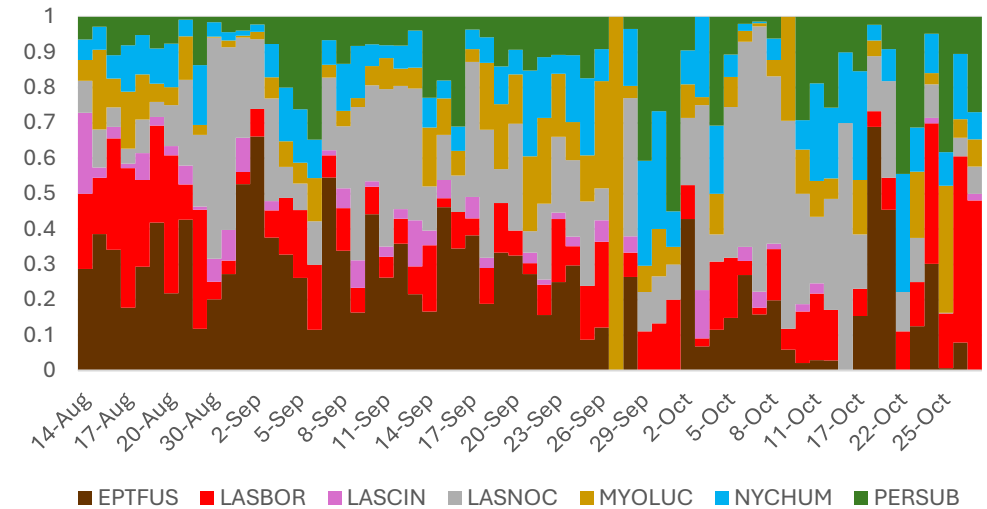




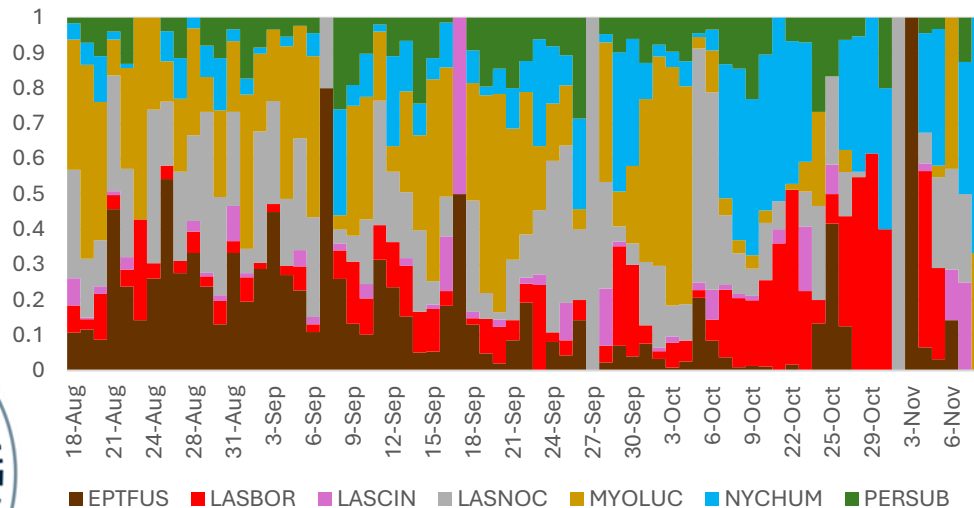
# 2023 Fall Migration Study

- 200 Site/nights
- 27,578 calls ID by Kaleidoscope Pro
  - 12 – Eastern Small-footed
  - 19 – Northern Long-eared
  - 82 - Indiana

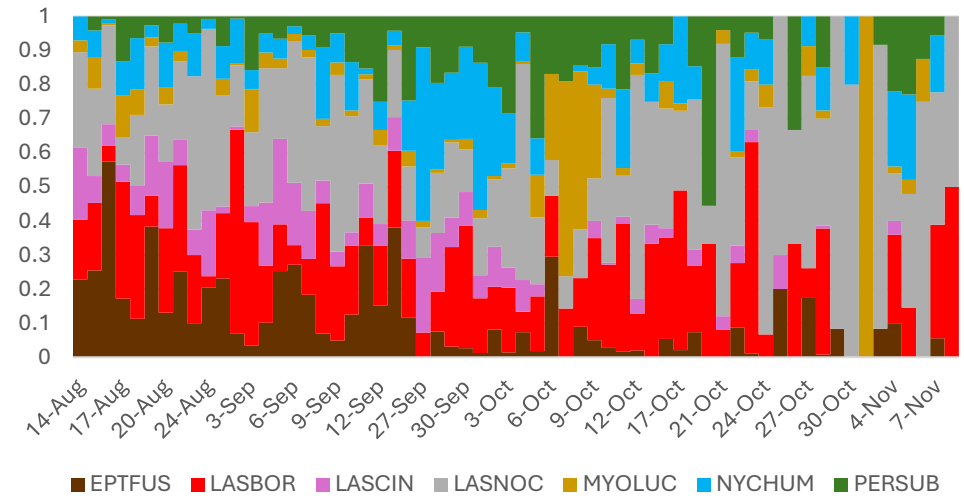
Cookes Castle



Middle Bass Island

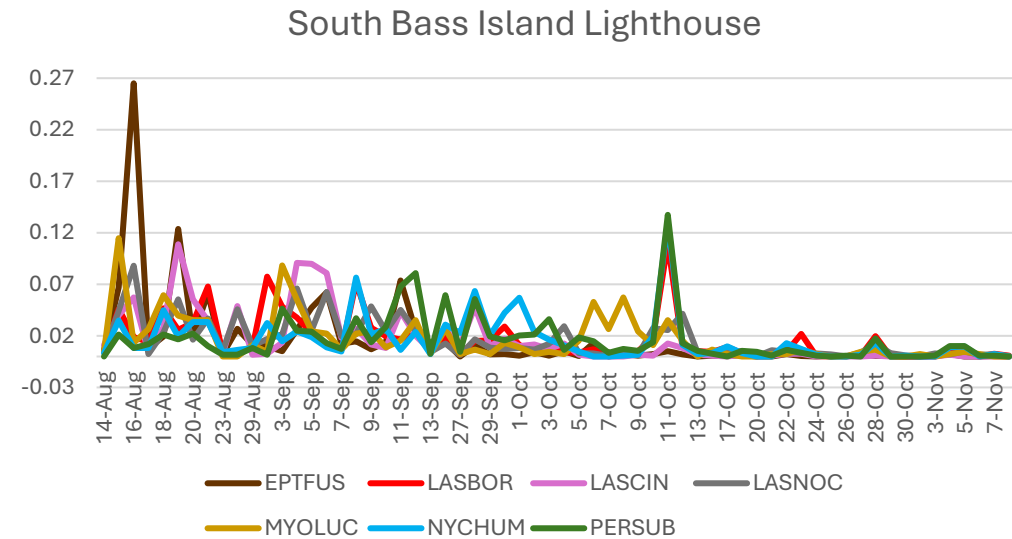
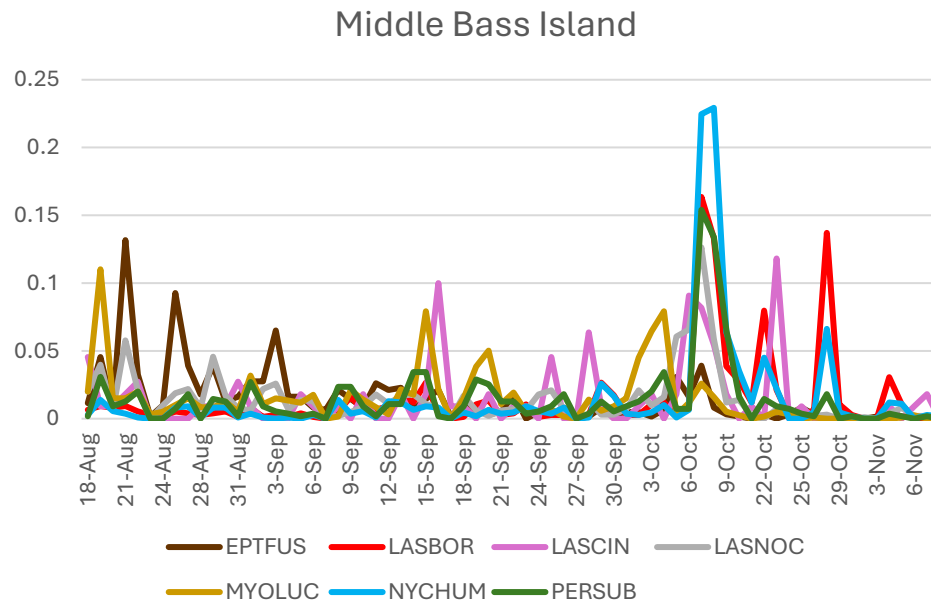
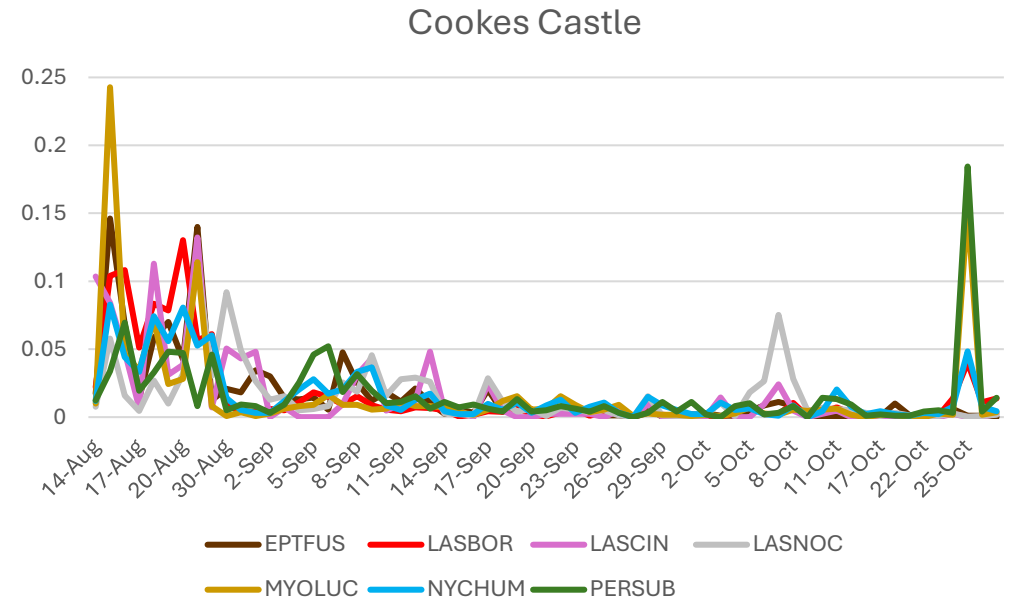


South Bass Island Lighthouse



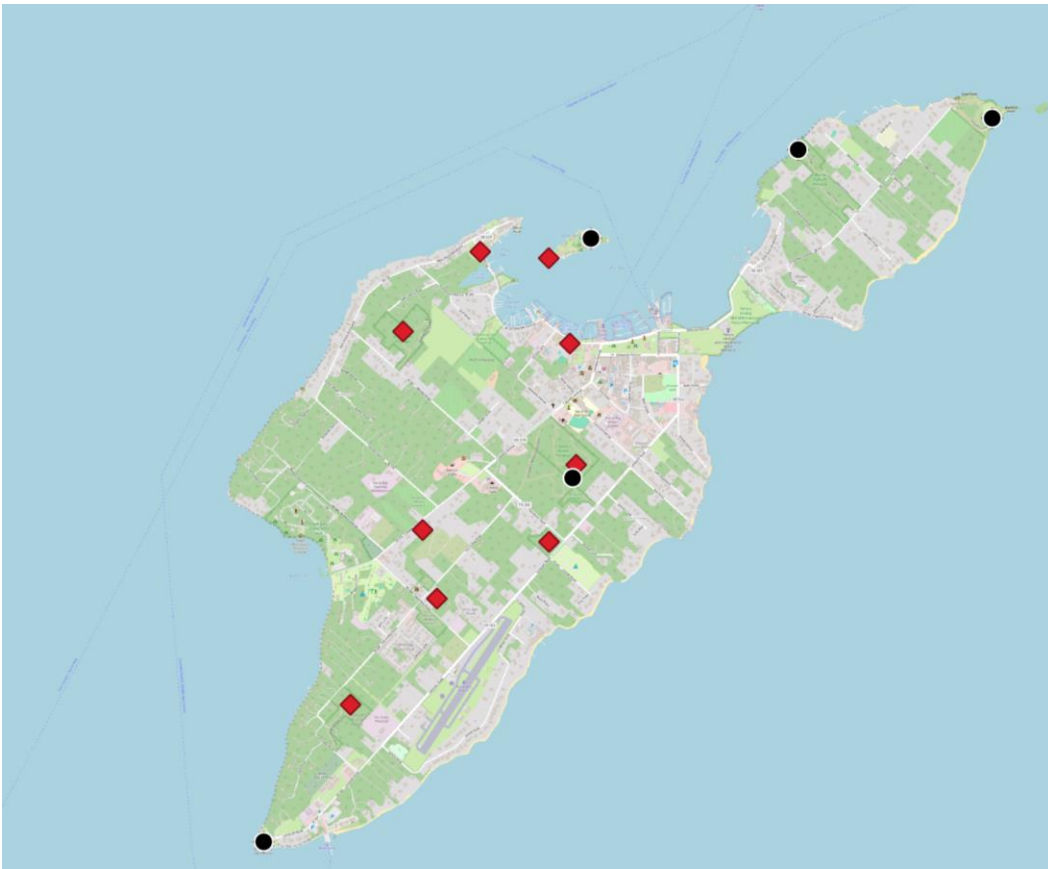


- Are the Islands important for Migration?
- Motus tower on the Island has picked up bats from Canada!
- But does our call data reflect migration or just declines in activity?





# 2024 Spatial Study



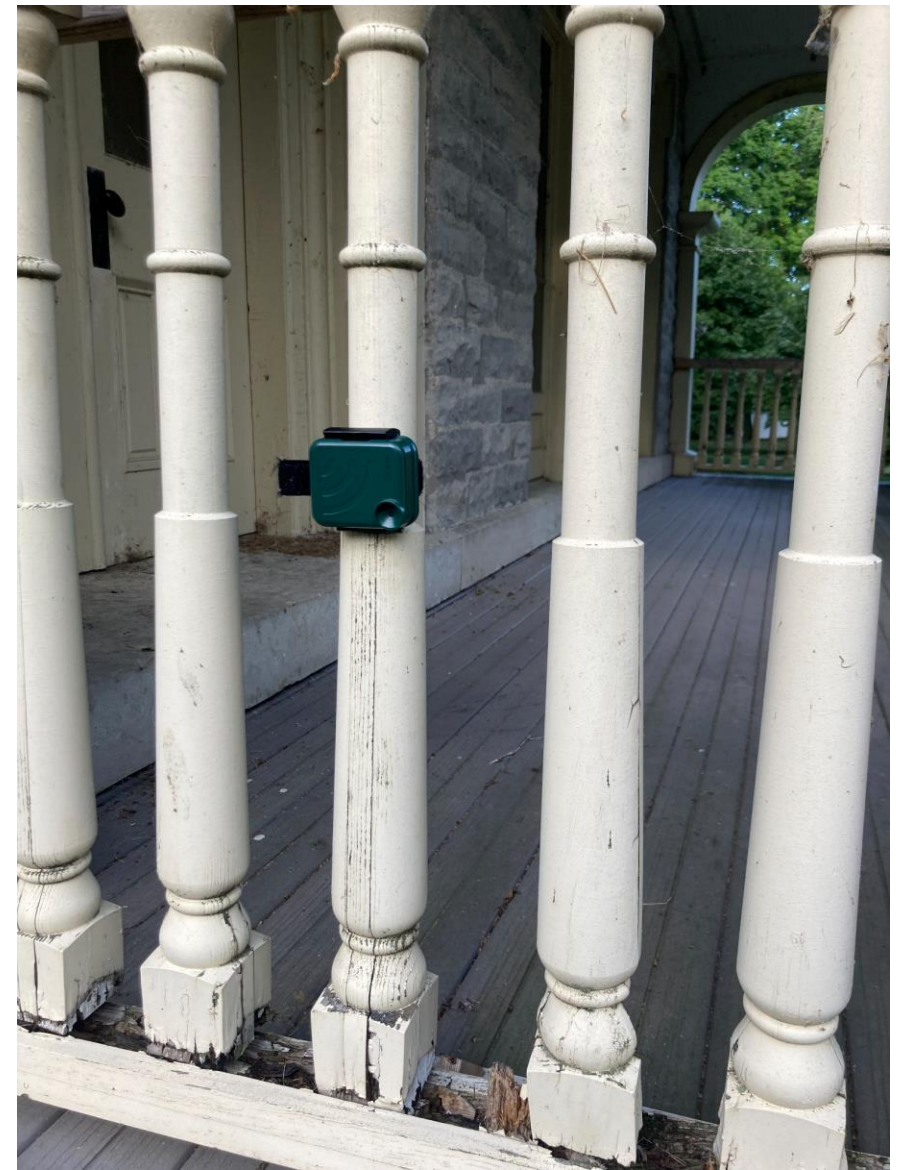
Selected same SBI locations as  
2023 and added a few more



Eliza Rothenburger – Stone Lab REU Student



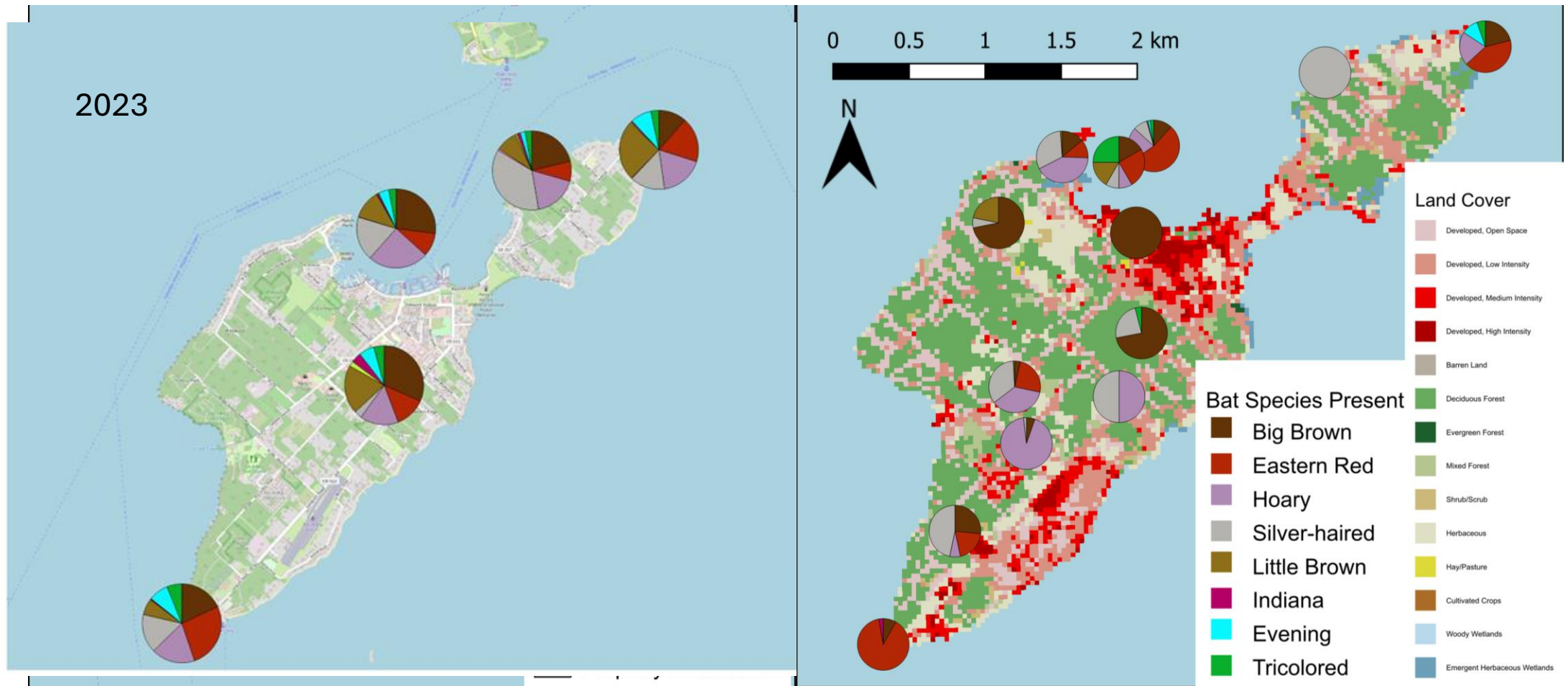




- SM4s used in 2023
- AudioMoths used in 2024







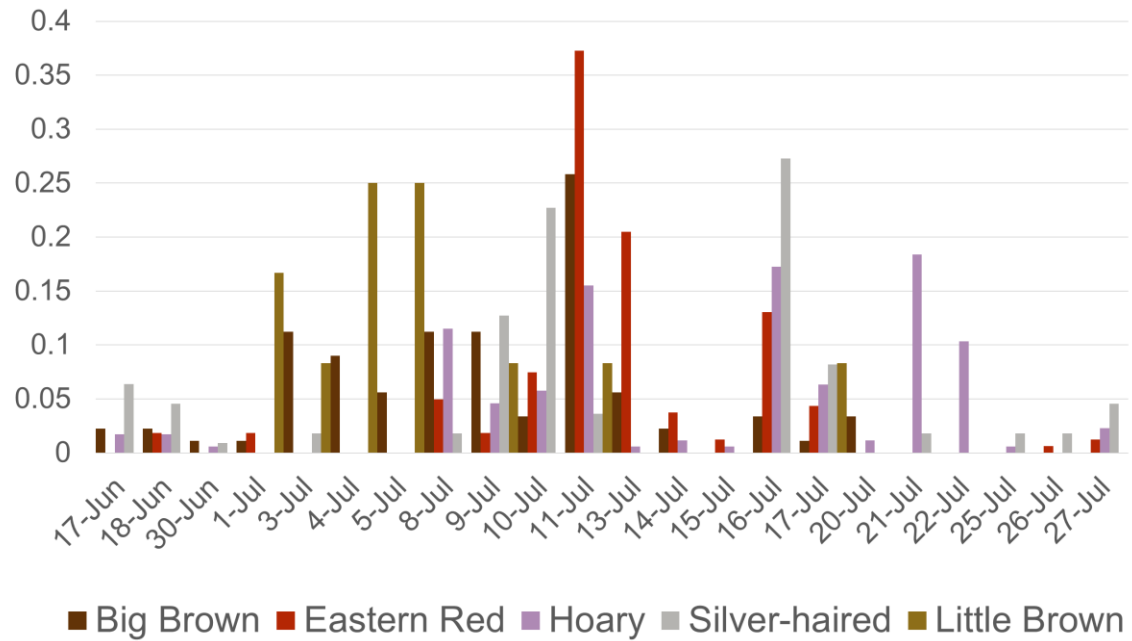
- 29 Site/Nights
- 559 total 'clean' call files
- 1 Indiana Bat detection

AudioMoths were configured with the NABat config. However the quality of the data was 'different' compared to SM4s

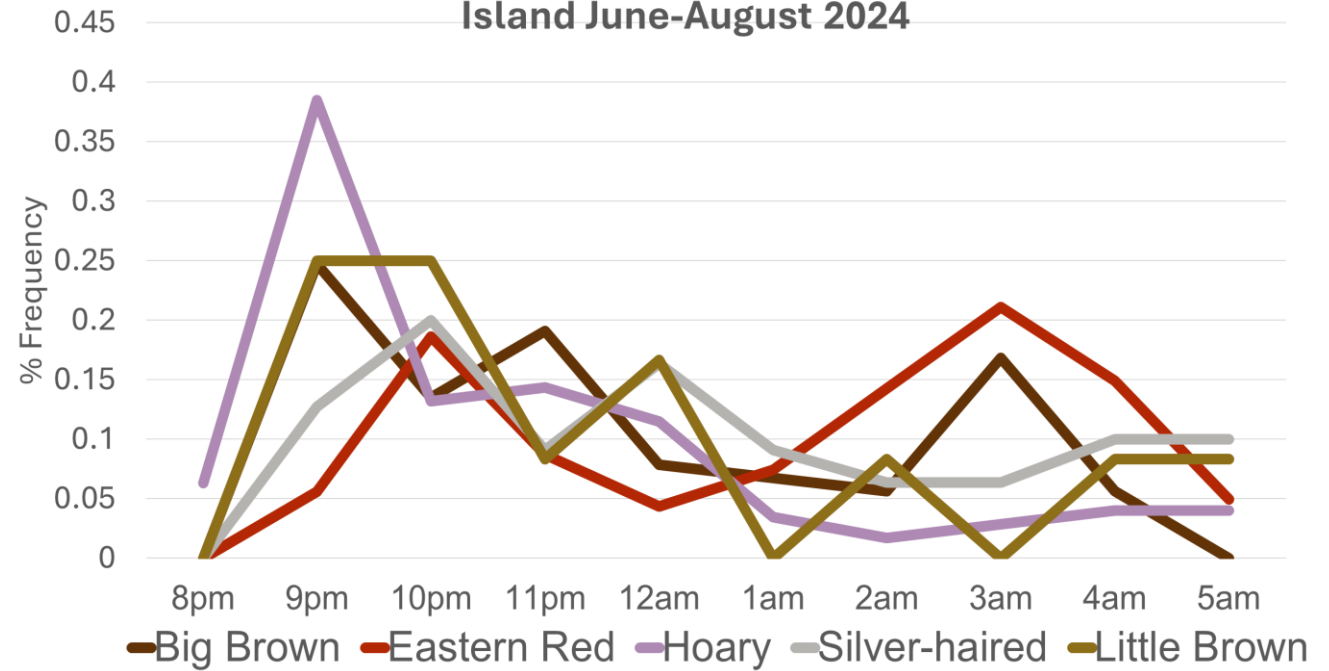




Nightly Percent Frequency of Bat Calls on South Bass Island June-August 2024



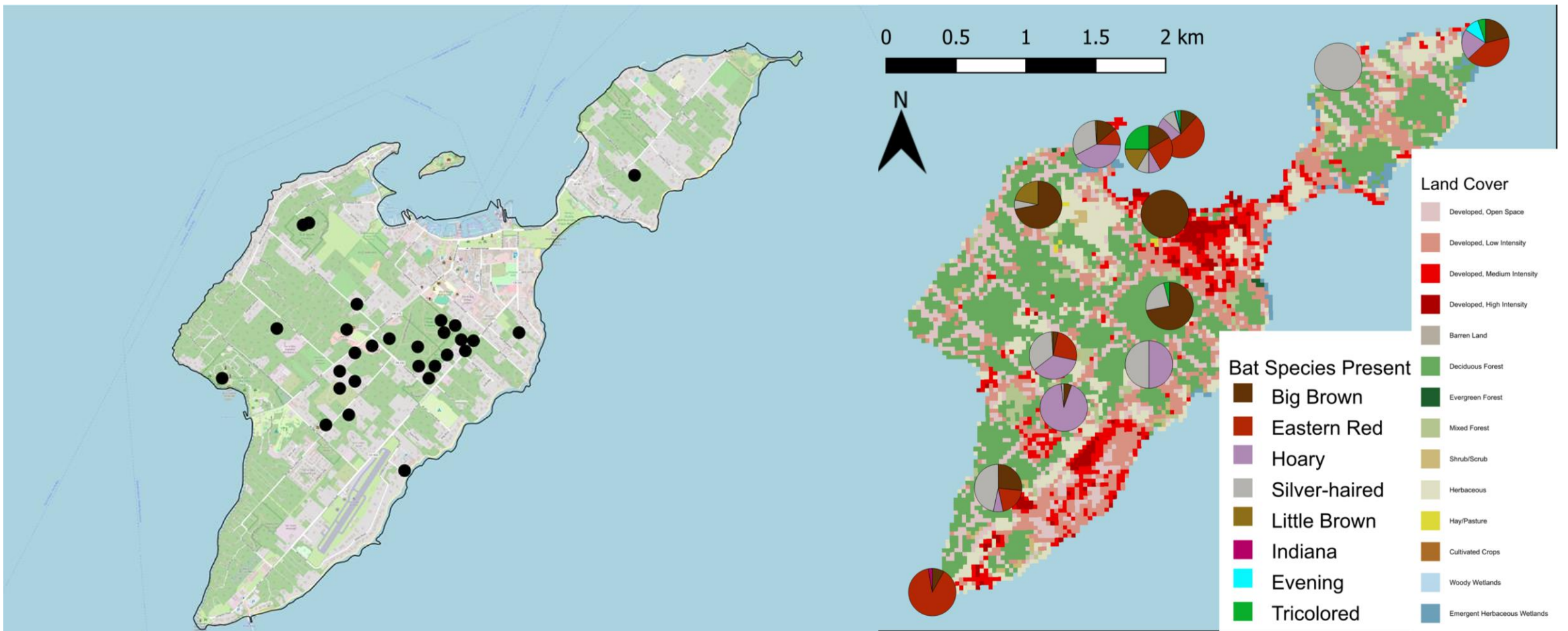
Hourly Percent Frequency of Bat Calls on South Bass Island June-August 2024



- Data not adjusted for effort or habitat







Ecological Questions of interest:

1. Are our caves important and when?
2. Are species partitioning feeding in space and time as they do in other ecoregions?
3. Is the Island just one large Edge Habitat?

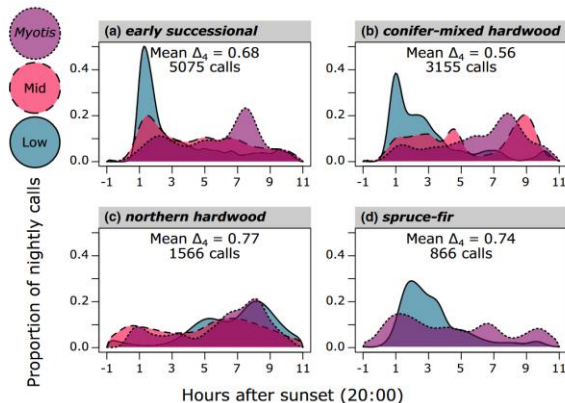




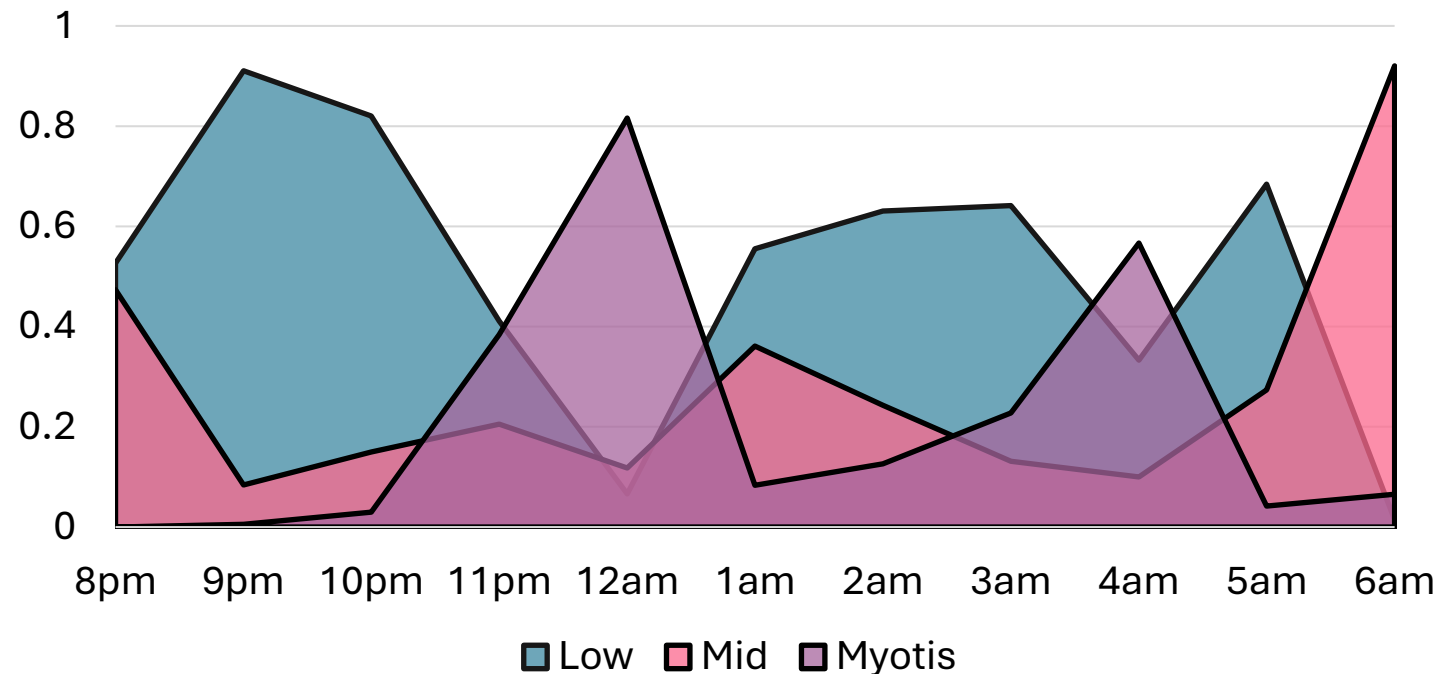
# Bats partition activity in space and time in a large, heterogeneous landscape

Elizabeth A. Beilke<sup>1,2</sup> | Rachel V. Blakey<sup>3,4</sup> | Joy M. O'Keefe<sup>1,2</sup>

**FIGURE 5** The degree of nightly temporal overlap between Low (blue, solid line), Mid (red, dashed line), and Myotis (purple, dotted line) phonic groups in the four dominant land cover classes of Great Smoky Mountains National Park, USA. Models were generated using a kernel density estimation procedure yielding an overlap value,  $\Delta_t$ , indicative of the mutual area under the two presented curves. The  $\Delta_t$  value ranges from 0 (no temporal overlap) to 1 (complete temporal overlap). We omitted mid bat activity from panel d due to its low activity in this land cover class



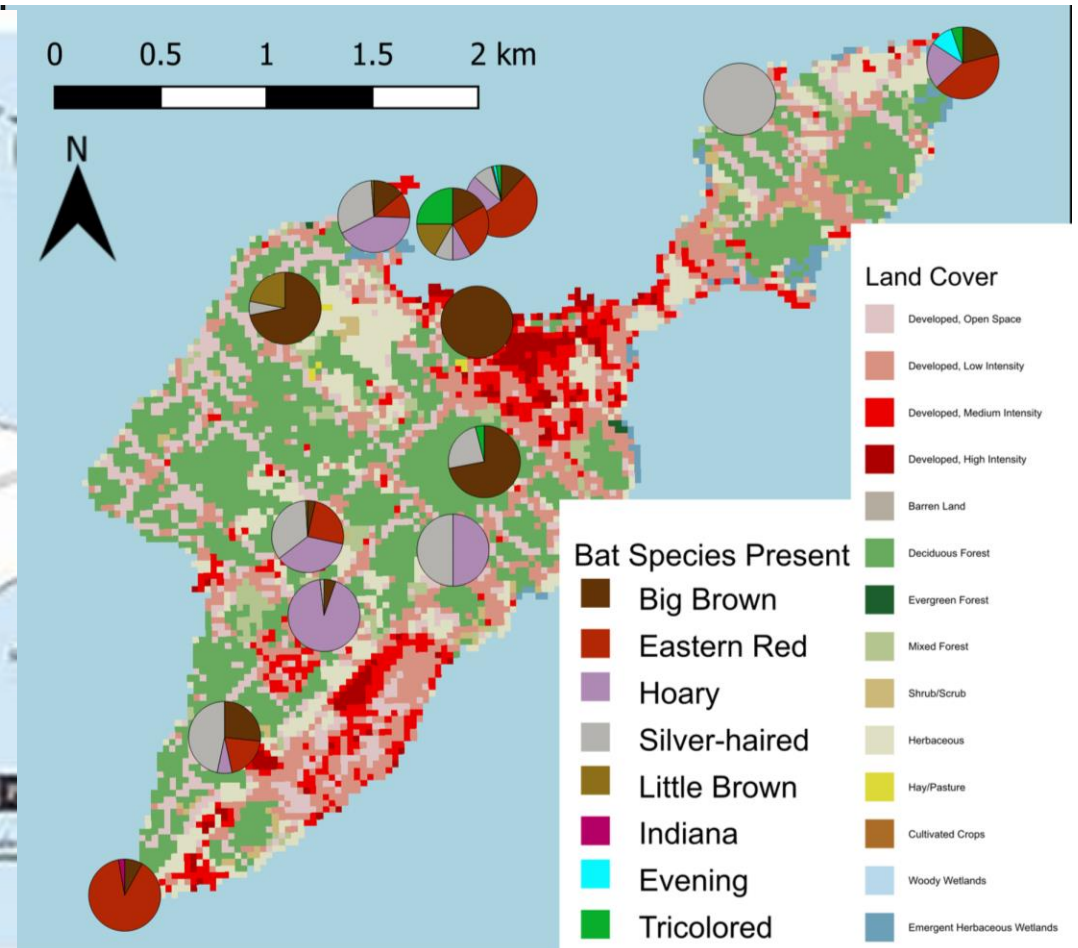
## Percent Frequency of Feeding Buzzes Cooke's Castle - August 2023



- Does temporal partition hold during migration?
- Are there forage availability limitations during migration?







Conservation Questions of interest:

1. Are our caves important and when?
2. Are the Islands important stopping areas for migration?
3. What habitats do we need to conserve for migration and/or maternity roosts?





## Change in Forest Tree Composition on the Lake Erie Islands due to the Invasion of the Emerald Ash Borer (*Agrilus planipennis*) and Invasive Plants

Emma Land<sup>1,\*</sup>, Lisa Kutschbach-Brohl<sup>2</sup>, and Douglas D. Kane<sup>3</sup>

Table 3. Species importance values for Duff's Woods on South Bass Island. Importance values calculated after Boerner (1984). Data from Boerner (1984), Eckardt and Kane (2008), and this study.

Species	Boerner 1982	Eckardt 2008	Land 2022
Norway Maple	-	-	1
Sugar Maple	4	5	4
<i>Carya glabra</i> Miller (Pignut Hickory)	-	1	-
Common Hackberry	2	1	4
Blue Ash	-	-	2
Amur Honeysuckle	-	-	3
<i>Ostrya virginiana</i> (Mill.) K. Koch (American Hophornbeam)	2	-	-
White Oak	-	2	1
<i>Quercus muehlenbergii</i> Engelm. (Chinquapin Oak)	-	-	1
American Basswood	-	-	1
<i>Ulmus rubra</i> Muhl. (Slippery Elm)	-	-	1

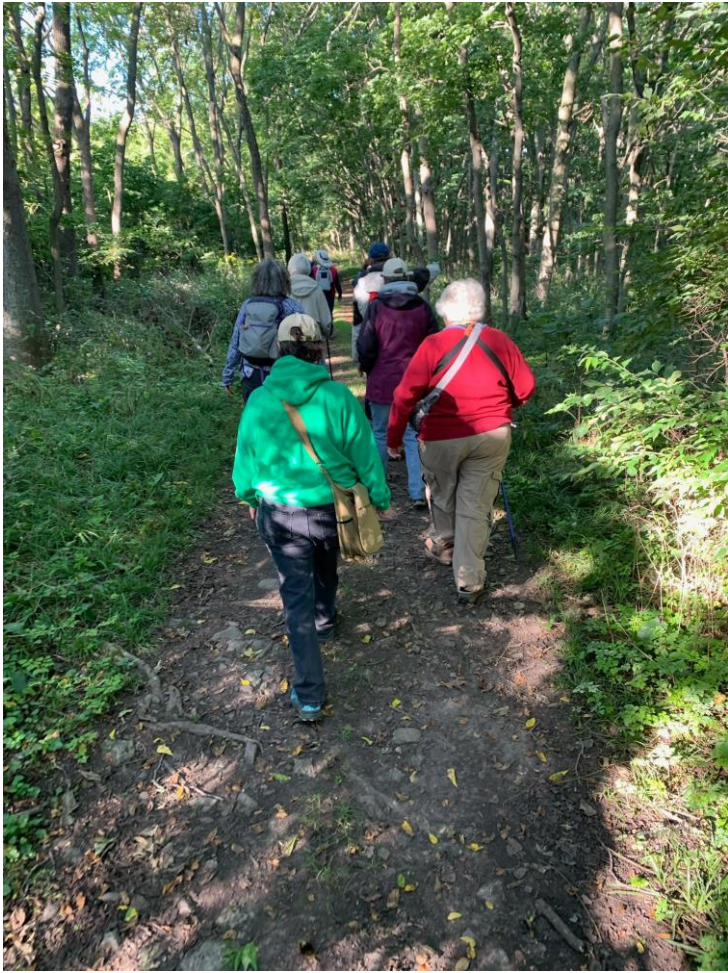


Conservation Questions of interest:

1. What habitats do we need to conserve for migration and/or maternity roosts?







Education Questions of interest:

1. Island residents and visitors aren't aware that bats are a normal part of the ecosystem
2. How do we share this information?
3. Do you want to come to the Islands and net bats???







Renee Fultz – Director  
Fultz.renee@gmail.com



Amy Alford – Research Coordinator  
abalford86@gmail.com

- Wild Tuesdays
- Preserve Hikes
- Netting??
  - Some support may be available through our collaboration with OSU Stone Lab
  - Netting on preserves and private lands

# VISIT US!!

