Let's Get Batty!: A Survey of Bat Species in a Globally Rare Pine Barrens and Along an Urbanization Gradient

Lydia Harvey, Allison Morrow, Miranda Rummell, Mark Baran, and Danielle Garneau

Goals

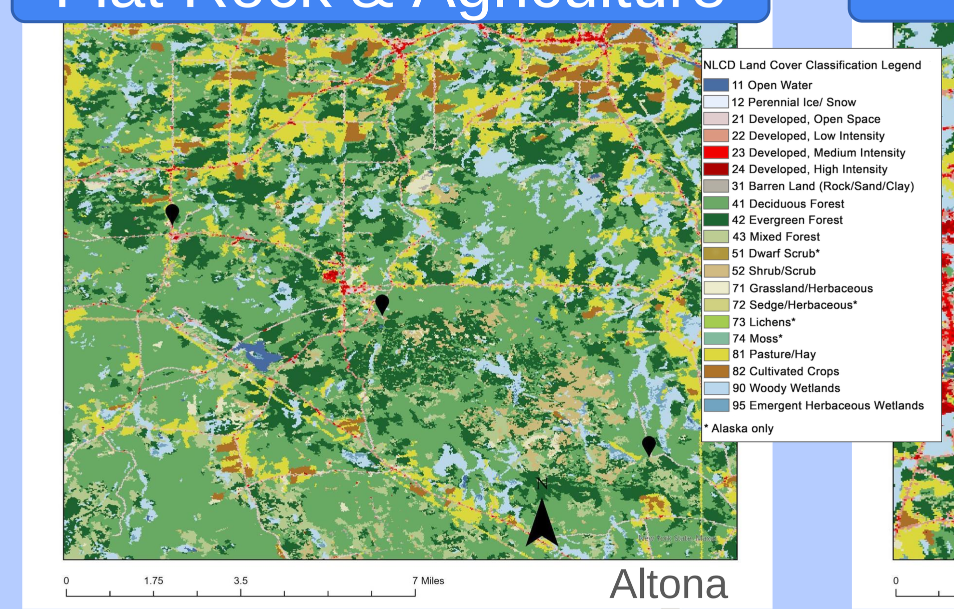
Goals: Evaluate bat community diversity patterns at the Altona Flat Rock in the 2018 burn, 1957 burn (unburn), and forested dam.

Compare bat community composition across rural (agricultural and Flat Rock) to urban sites (SUNY Plattsburgh campus and City Marina) in the North Country.

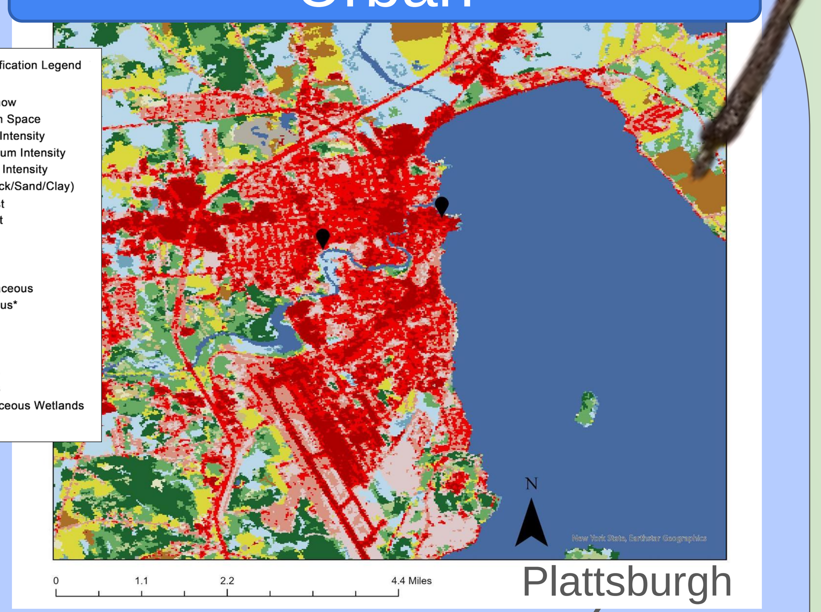
Hypothesis: Bat species richness would be highest in the Altona burned area due to increased insects in the adjacent wetland and associated with regenerating understory.

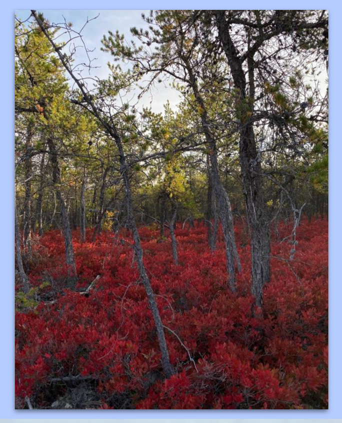
Study Sites

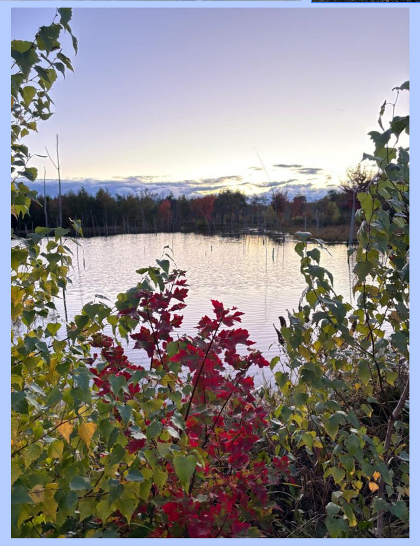
Flat Rock & Agriculture

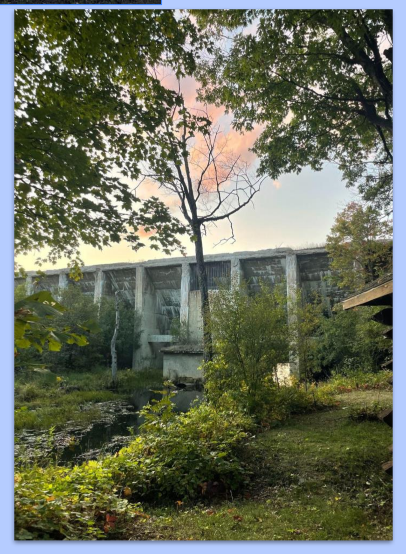


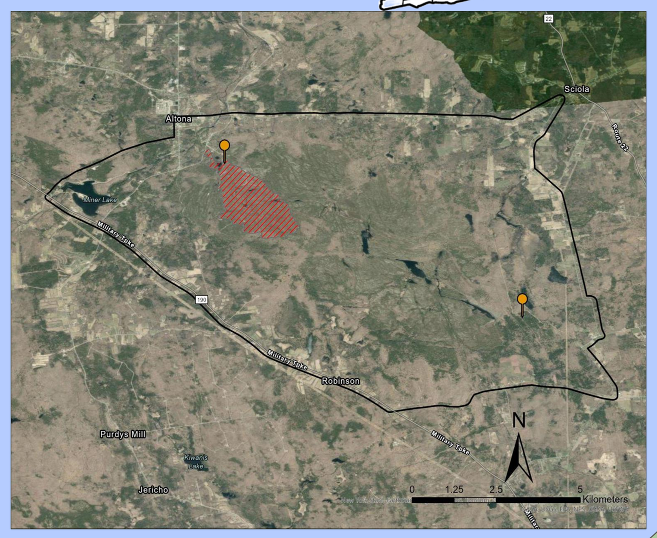
Urban



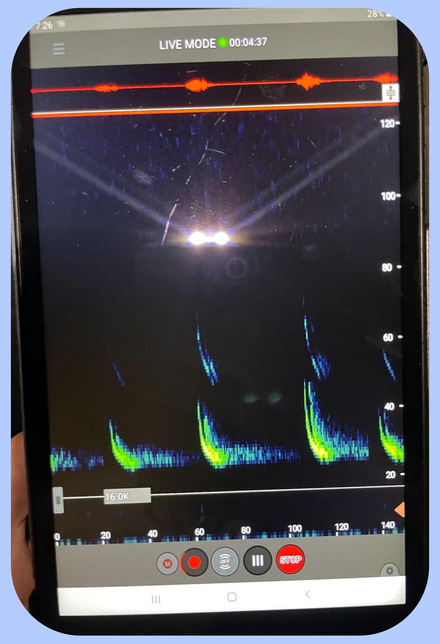


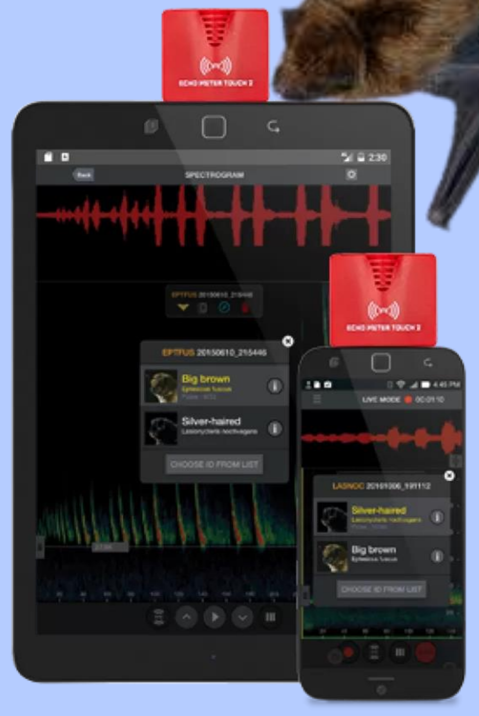






Methods





- Sept. 11-Oct. 10, 2024
- Nocturnal acoustic surveying during clear nights, temps above 50ºF
- Surveys commenced 30 min prior to sunset with a duration of 30 min

Site	# Sampling Dates
Agriculture	6
FR Burn	5
FR Unburn	3
FR Forested Dam	2
Marina	2
Campus	2

Results

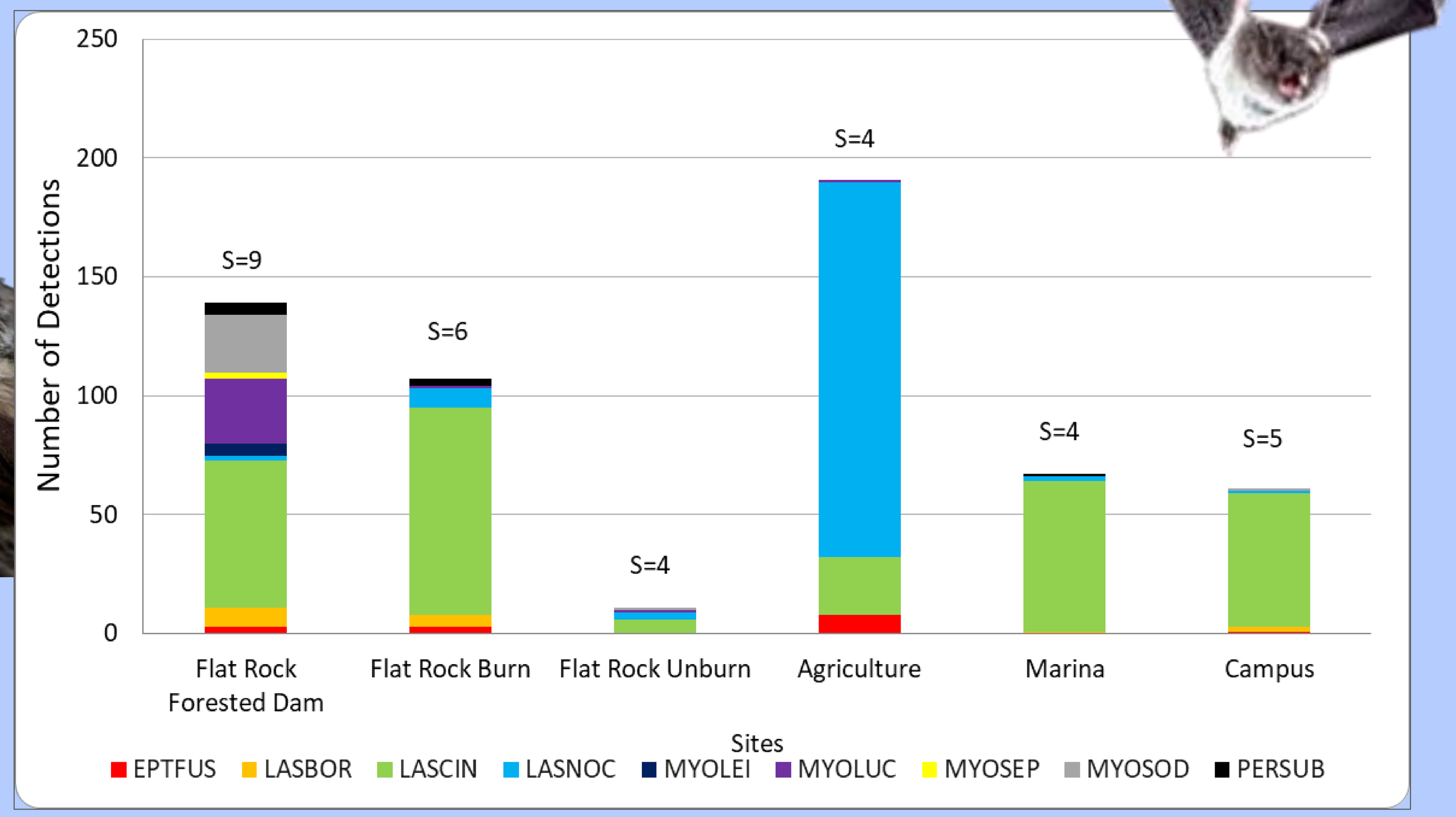
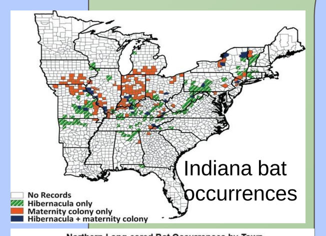
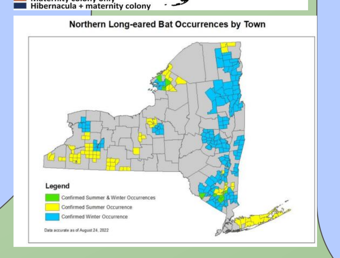


Figure 1. Bat detections by species at each of the six sites sampled with species richness (S) denoted above the bar for each site.

EPTFUS: big brown bat
LASBOR: red bat
LASCIN: hoary bat
LASNOC: silver-haired bat
MYOLEI: eastern small-footed bat
MYOLUC: little brown bat

PERSUB: tricolored bat (**Proposed endangered as of 2022)**
Species of Conservation Concern:
MYOSOD: Indiana bat **ENDANGERED**
MYOSEP: northern long-eared bat **THREATENED**





Northern long-eared bat occurrences

Take-Homes

- Bat community richness is greatest at the forested dam as all nine native species were detected.
- Altona Flat Rock's microtopographic features, which include rocky ledges, small caves and crevices provides habitat appealing to cave-dwelling species.
- Bats utilize multiple types of habitats for foraging and roosting, not just one.
- Bats prefer heterogeneous forest and open habitat (forested dam) compared to homogeneous land cover (agriculture, urban/marina).
- Tree-roosting hoary and silver-haired bats were ubiquitous.
- Bats can adapt to urban areas, using buildings and bridges as roosts.
- Wildfire can have temporary negative effects on bat populations that can alter community composition.
- Some species are more generalist when selecting habitat compared to others, primarily tree bats.
- Threatened (northern long-eared bat) and the endangered (Indiana bat) species were potentially detected.
- Bat populations have not been studied at Altona Flat Rock, this study can inform future research.
- Combining acoustic surveys with mist netting (DEC) would facilitate population estimates, evaluation of body condition, and monitoring of regional risk of white-nose fungus.
- Complex and unique habitat (sandstone pavement barrens) should be managed for bat populations.

Acknowledgements

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Additional thanks to Hudsen Timon for assisting with surveys and to Caley Doell for stunning Flat Rock photos.

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