Burns, Buckets, and Traps: Assessing Small Mammal Species Richness and Abundance Following Wildfires in a Northern NY Jack Pine Barrens

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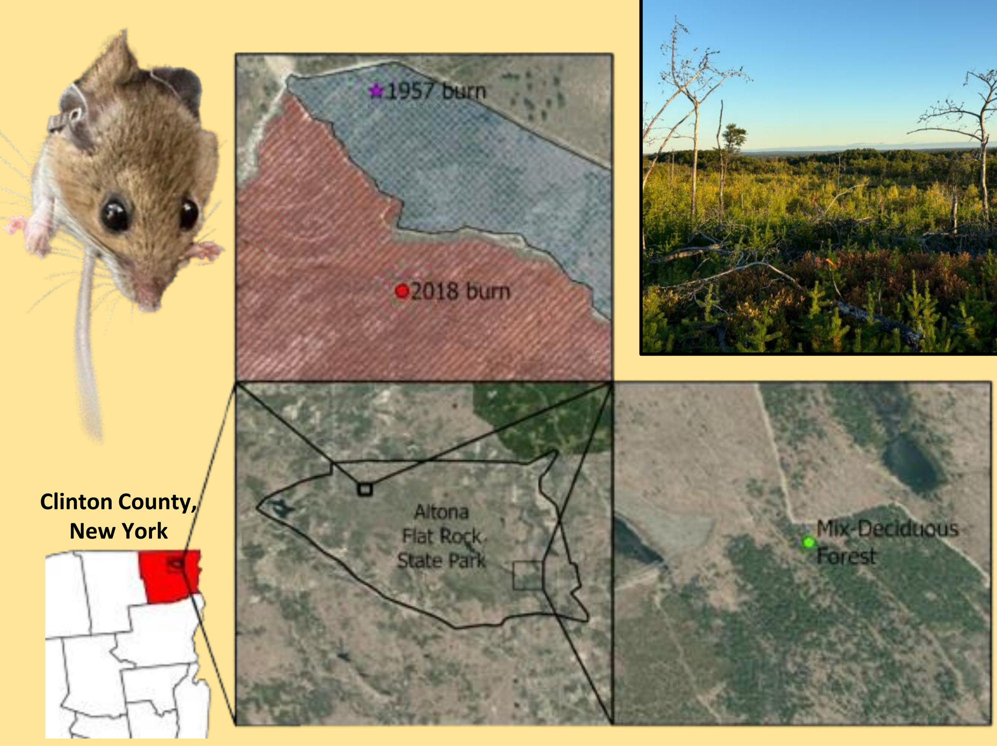
Goals and Hypotheses

- To compare small mammal abundance and diversity patterns at the Flat Rock sandstone pavement barrens recent (2018) and recovered burn (1957) sites with that of a nearby mixed deciduous forest.
- Evaluate the efficacy of bucket camera trapping compared to live trapping methods for monitoring small mammal diversity.

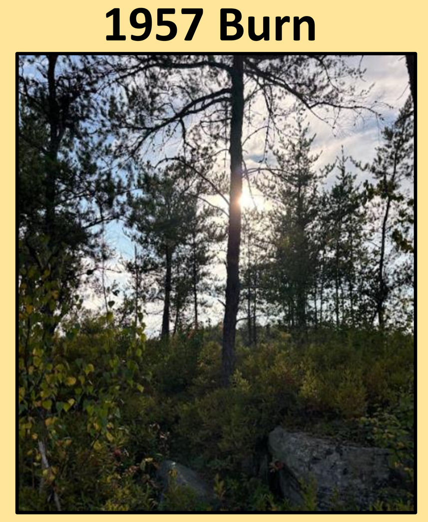
Hypothesis: The small mammal community within the 2018 burn would have lower species richness and diversity than the 1957 burn, and both sites would be different than the nearby mixed deciduous forest.

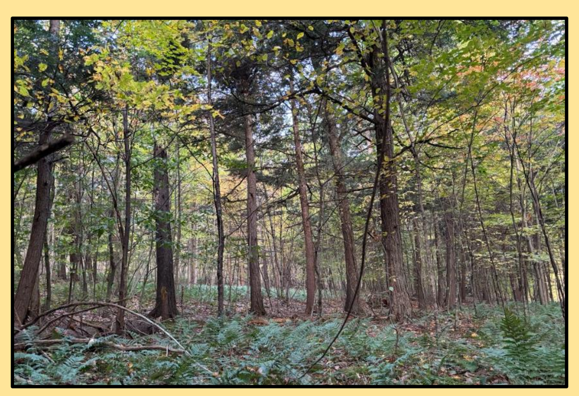
Study Site



2018 Burn

1957 Burn





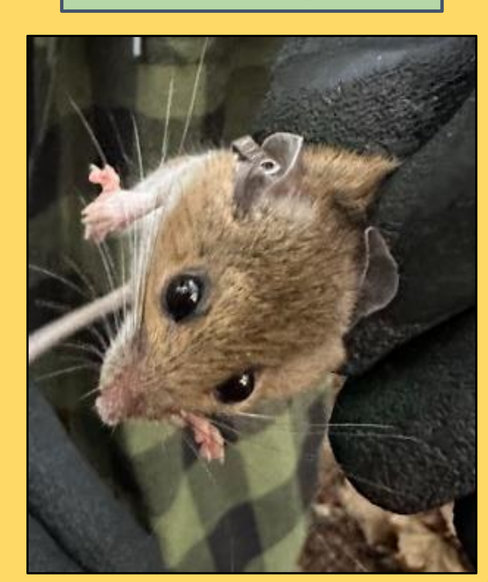
Mixed Deciduous Forest

Methods

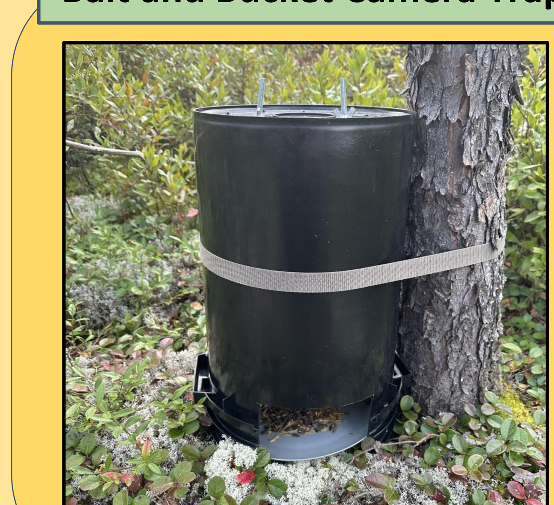
Bait and Set Sherman Live Traps

Morphological Measurements

Mark Recapture



Bait and Bucket Camera Trap

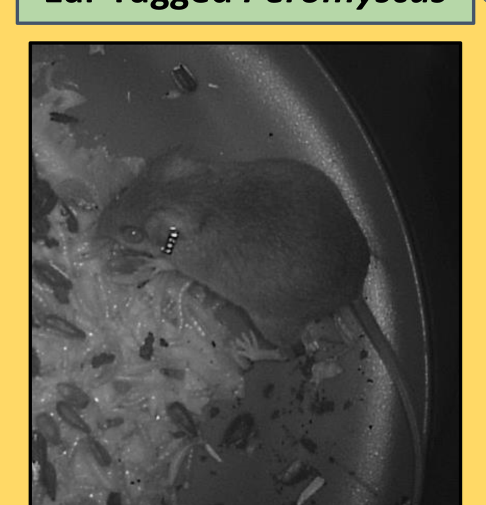


Peromyscus sp.

Chipmunk

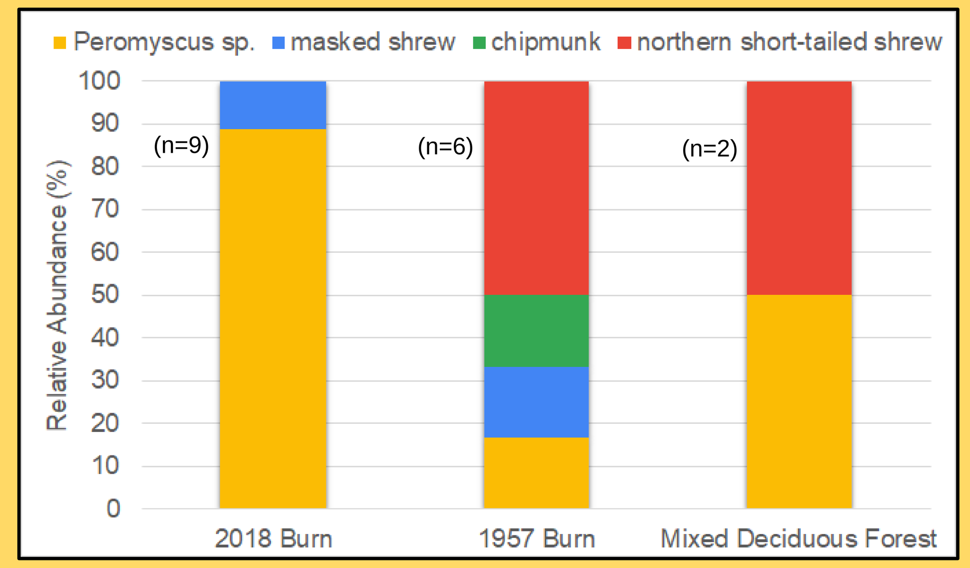
Northern Short-tailed Shrew

Ear Tagged *Peromyscus*



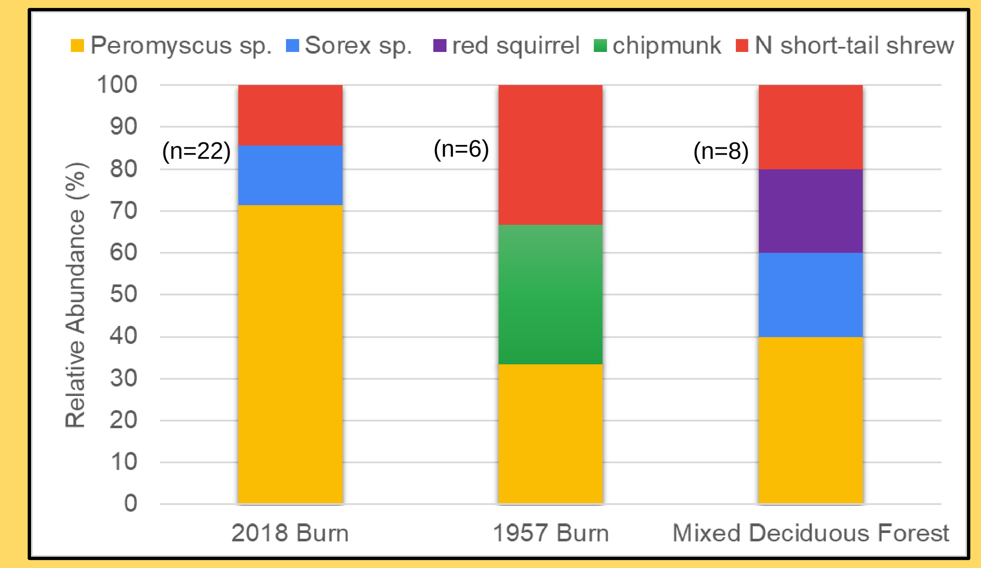
Results

Sherman Live Trapping Results



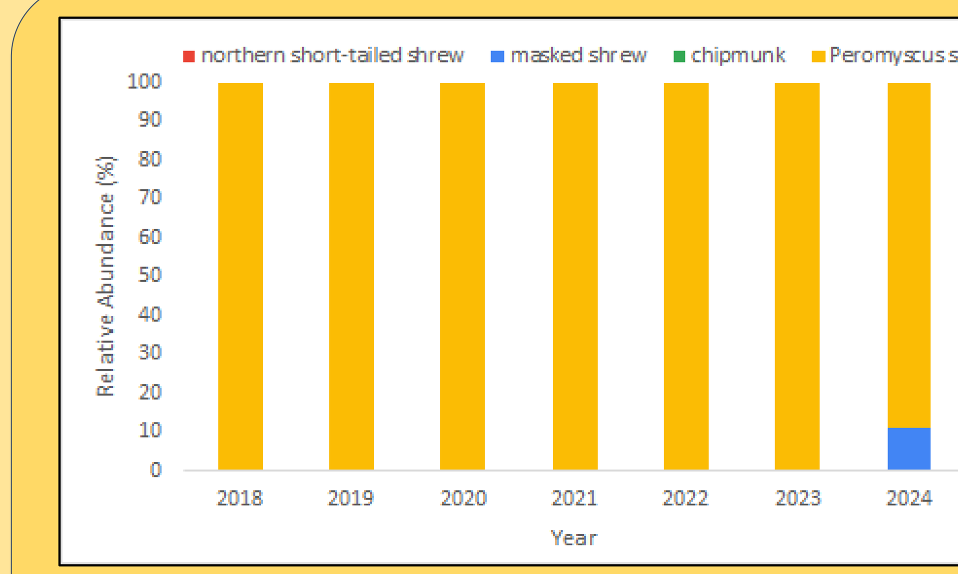
Site 1	Site 2	Sorensen Similarity Index
1957 Burn	2018 Burn	0.667
1957 Burn	Mix-Decid	0.667
2018 Burn	Mix-Decid	0.5

Camera Trap Results

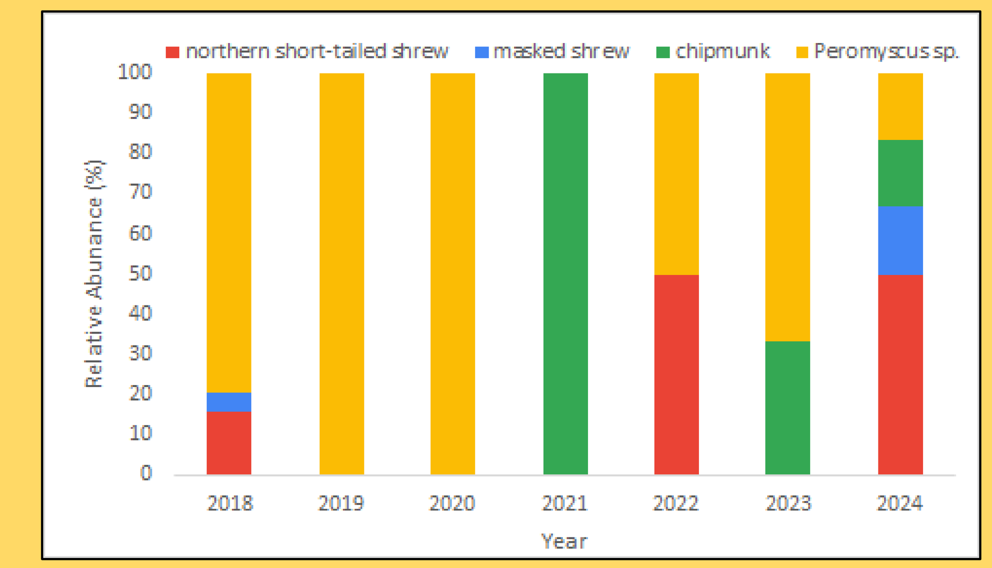


Site 1	Site 2	Sorensen Similarity Index
1957 Burn	2018 Burn	0.4
1957 Burn	Mix-Decid	0.333
2018 Burn	Mix-Decid	0.857

Long-term Trends



Small mammals caught at the 2018 burn site



Small mammals caught at the 1957 burn site

Take Homes

When Using Sherman Live Traps:

- The small mammal community was most diverse (S=4) in the 1957 burn site.
- *Peromyscus* sp. was detected at all sites.

When Using Bucket Camera Traps:

- The small mammal community was most diverse (S=4) in the mixed deciduous site.
- *Peromyscus sp.* and northern short-tailed shrews were detected at all sites.
- Species richness was equal or greater with this method, except in the 2018 burn site.
- Cameras are less invasive than live traps, but ear tags were necessary to ID individuals and morphometric data collection was not possible. Methods should be paired for best results.

Community Differences:

- 2018 burn site was dominated by *Peromyscus* sp., suggesting resource availability still favors generalists after burn. Red squirrels were unique to the mixed deciduous forest, chipmunks were unique to the 1957 burn site.

Long-term Trends:

- 2024 had the highest species richness in the 2018 (S=2) and 1957 (S=4) burn sites in the long-term dataset (2018-2024).

Future Management Recommendations:

- The Altona Flat Rock State Park should be actively managed with fire/silviculture to promote habitat heterogeneity.

More Info!

Acknowledgements

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