

Allegheny Woodrat (*Neotoma magister*) presence determination via camera trapping in southeastern Pennsylvania



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Abstract

The range of the Allegheny woodrat, *Neotoma magister*, has been in decline for years due to several factors, like habitat fragmentation and raccoon roundworm. The species is listed as Threatened in Pennsylvania and is believed to have been extirpated from southeastern Pennsylvania, however, there have not been thorough surveys in recent years. This research project utilized camera traps in the Spring of 2022 to survey for *N. magister* presence in Bucks County in areas of appropriate habitat adjacent to the Delaware River. All data collected contributes to the Pennsylvania Game Commission and other cooperating organizations.

Introduction

N. magister historically ranged from Connecticut to Alabama and Georgia along the Appalachian Mountain range, but is currently found in Pennsylvania, West Virginia, Virginia, North Carolina, Ohio, Indiana, New Jersey, Kentucky, and Alabama (Stovall, 2011).

The decrease in its historic range is attributed to increased predation due to landscape changes and habitat fragmentation (Lombardi et al., 2011), and the introduction of raccoon roundworm (*Baylisascaris procyonis*) through raccoon (*Procyon lotor*) feces (Balcom and Yahner, 1996).

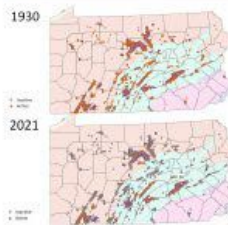
N. magister is listed by several states as being of conservation concern, more than any rodent species in the United States.

Due to the extensive loss of the *N. magister* population, it's a priority of several state agencies to find population reservoirs to monitor population growth or decrease. Camera trapping is believed to be the most efficient, accurate, and most cost effective method of determining presence in areas (Castleberry et al., 2014).

Methods

- The sites chosen met some or all requirements of *N. magister* habitat, including loose rocks or exposed bedrock outcroppings, greater slopes that are south-facing, and little overstory basal area (Balcom and Yahner, 1996).
- Bait tubes were constructed to attract *N. magister* to the camera trap and serve as a measuring device. The bait tubes were made with schedule 40 PVC tubing, 1.5-inches in diameter, and 1 foot long. Each had 4 holes drilled every 2.5 inches on the tube on two perpendicular axes. The bait tube was capped, with one end being removable, and electrical tape was placed every 2 inches along the tube to serve as measurement. All dimensions were based on the PGC

- Woodrat Camera Trapping Protocol (Turner et al., n.d.).
- Wire was threaded through the holes of the PVC and secured to the landscape. The bait tube was placed horizontally in full view of the camera.
- Peanut butter bird suet was the bait used in this project and is recommended by the PGC (Turner et al., n.d.).
- Trail cameras with mounting straps were utilized and set to take multiple photo bursts within ½ second, had a reset time of 5 seconds, and had 5mB resolution.
- After constructing the bait tubes, the camera traps were set in the identified sites, spaced at least 50 meters apart, and kept operational for at least seven consecutive nights.



These maps from Colton Moyer's presentation (IUP "Allegheny Woodrat Occupancy in Pennsylvania 1930-2021") show the difference in active versus inactive *N. magister* sites in Pennsylvania from 1930 compared to 2021.



This photo was taken in Durham Mine and shows the general setup of the camera traps and bait tubes throughout the project.



This depiction of Bucks County highlights the general areas that the camera traps were placed, including Durham Mine, SGL 157, Ringing Rocks, SGL 56, and High Rocks Vista.

Results

Species	# Sightings
<i>Neotoma magister</i> Target Species	0
<i>Peromyscus leucopus</i>	230
<i>Vulpes vulpes</i>	28
<i>Sciurus carolinensis</i>	15
<i>Procyon lotor</i>	7
<i>Tamias striatus</i>	6
<i>Didelphis virginiana</i>	3
<i>Glaucomys volans</i>	2
Bird	1

Discussion

Despite finding many ideal locations that fits the habitat requirements of *N. magister*, as well as historical locations, there were no sightings of *N. magister* during this project. Eight other species were found, among them it is significant to note the presence of raccoons (*Procyon lotor*). Their presence could indicate the presence of raccoon roundworm, which would be a factor that might limit *N. magister* populations.

The most predominantly seen species was the white-footed mouse, *Peromyscus leucopus*. While the red fox, *Vulpes vulpes* appeared on camera frequently, the sightings were made up solely of one fox kit and an adult fox.

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Conclusion

The goal of this research project was to evaluate the presence of *N. magister* in Bucks County, PA. While no sightings were made, further surveys for *N. magister* populations in Bucks County is recommended.

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