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January 2024

Surveys of *Aphonopelma hentzi* in Missouri: Conservation Efforts through Population, Genetics, and Habitat Studies

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Recommended Citation

Spencer, Anderson B. Mr. and Hansis-O'Niell, Becky, "Surveys of *Aphonopelma hentzi* in Missouri: Conservation Efforts through Population, Genetics, and Habitat Studies" (2024). *Undergraduate Research Symposium*. 165.

Available at: <https://irl.umsl.edu/urs/165>

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Surveys of *Aphonopelma hentzi* in Missouri: Conservation Efforts through Population, Genetics, and Habitat Studies



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Potential Endangerment

- Tarantulas in Missouri live in glades that are threatened by habitat destruction, lack of wildfire, and cedar encroachment
- Males travel up to 1.7km to mate, females remain in their burrows
- Takes 8 - 10 years to reach maturity, and molt as they grow
- Inbreeding and low population sizes could pose as a threat to local *A. hentzi* community



Photo by Anderson Spencer

Common name: Texas brown tarantula

Scientific name: *Aphonopelma hentzi*

Lifespan: 8-10 years for males and over 20 for females

Diet: Arthropods and small vertebrates

Natural history: Females and subadults live in burrows. Mature males wander in the fall in search of mates. Eggs hatch in mid to late summer.

Population Survey

- Data gathered in Jefferson County, MO between June and September of 2022
- Exhaustive search, lured tarantulas out of burrows
- Measured and tagged tarantulas with small bee tags and glue
- Collected molts

Glades are treeless grasslands composed of volcanic soils and rocks. Prior to colonization, glades were maintained by wildfires. Now, land managers use prescribed burns and shrub removal to maintain them. Glades are warm and dry compared to other grasslands, making them especially good tarantula habitat.

Glade Habitat



Photo by Cicely Kruttsch

Results

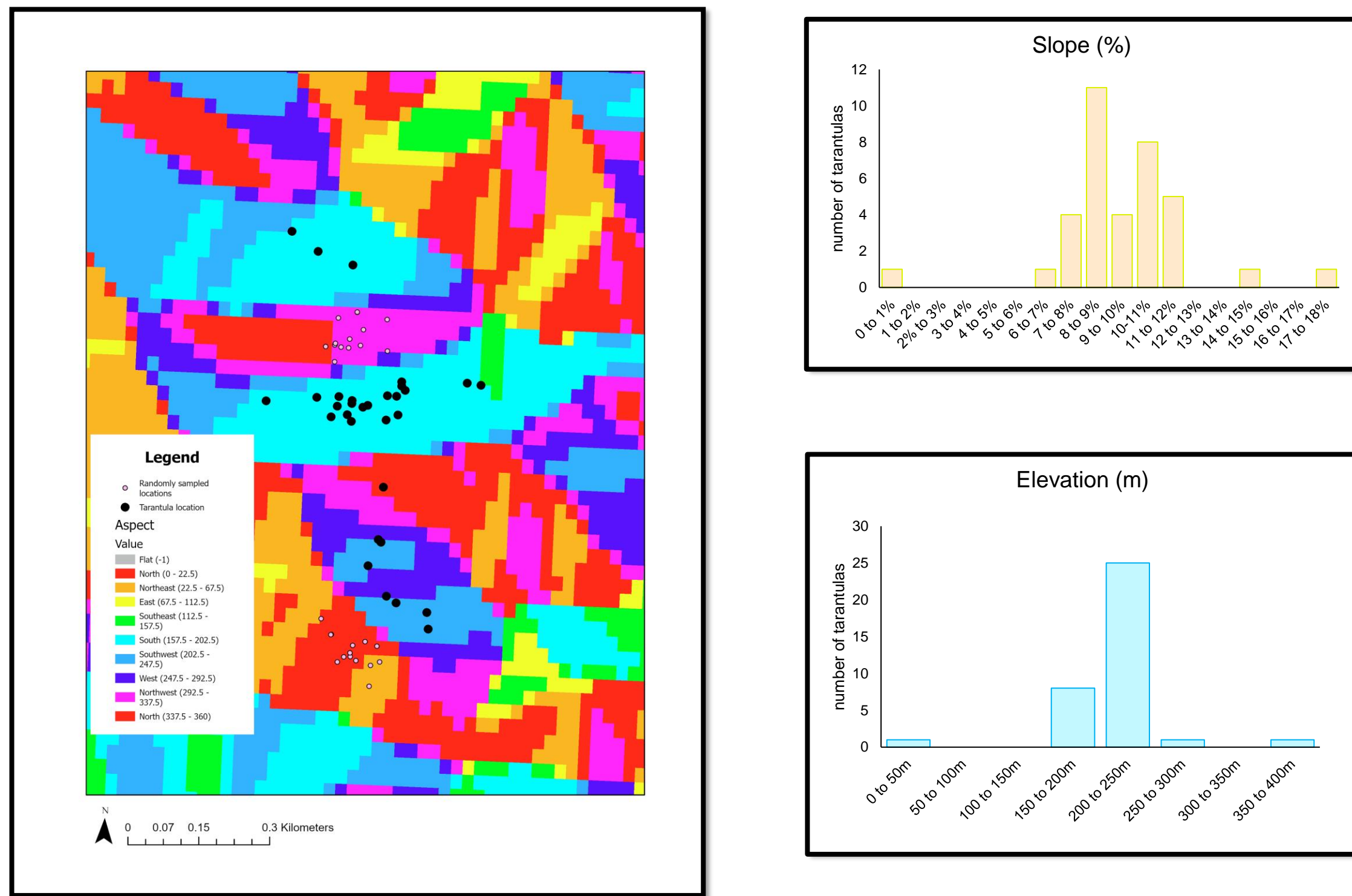


Figure 1: Pictured above are the tarantulas collected against slope (steepness of the terrain), aspect (the direction in which the terrain faces), and elevation. Each dot represents a single tarantula.



Figure 2: Pictured above are the minimums/maximums and averages for sizes of specimens and the humidity/temperatures of their burrows.

Habitat Preferences

- South/southwest facing habitat preferences
- Clustering suggests that they thermoregulate on southerly slopes
- Reside in scrape burrows
- Understanding their habitat needs helps us know how to better preserve their species.
- Conservation efforts in Jefferson County are imperative due to the small number of tarantula populations in Missouri

Utilizing Genetics

- Understanding gene flow between glades and tarantula populations
- Used molts gathered in the field for DNA extraction, which has not previously been done
- Successfully extracted DNA from molts and will use it to form phylogenetic trees and calculate the coefficient of inbreeding (COI) for glades and glade complexes
- Will use Inter Simple Sequence Repeats (ISSR)

Table 1: DNA concentrations and purity for molts collection in the summer of 2022. More molts are in process.

Sample Number	DNA Levels (ng/uL)	DNA Purity (260/280)
M001	85.500	1.604
M002	118.500	1.601
M003	15.500	1.685
M004	58.400	1.609
M005	20.600	1.304
M006	28.200	1.593
Average	54.45	1.565

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Acknowledgments

Research funded by UMSL Office of Research and Economic & Community Development, Missouri Department of Conservation Wildlife Collectors Permit #19857, Thank you to Vivian Congleton, Anderson Spencer, Cicely Kruttsch, Bryson Barkley, John Vogel, Matt Ormsby, MDC staff.