**BRANDI JUNE PESSMAN**

Ph.D. Candidate, University of Nebraska-Lincoln, School of Biological Sciences (she/her)

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**EDUCATION**

Ph. D. Biological Sciences (Specialization: Ecology, Evolution, and Behavior)

University of Nebraska-Lincoln, May 2024 (anticipated)

Research Advisor: Dr. Eileen Hebets

B. S. Biology (Minors: Mathematics and Chemistry), *Summa cum laude*

North Central College, Naperville, IL, June 2019

Research Advisor: Dr. Chandreyee Mitra

Study Abroad: University of Glasgow, Glasgow, Scotland, Fall 2017

**PUBLICATIONS**

**Pessman, B. J.,** Hays, M., Agpawa, E., & Hebets, E.(2023).Urbanization affects web abundance and aggregation of a funnel-weaving spider, *Agelenopsis pennsylvanica*. *Urban Ecosystems*. <https://doi.org/10.1007/s11252-023-01379-z>

**Pessman, B. J.,** Rae, R., Wagner, V. & Mitra, C. *Acheta domesticus* males reared in different population densities modify adult behaviour, but not physiology. *Under review at Ecological Entomology.*

**Pessman, B. J.,** McGinley, R., & Hebets, E.Spatial and temporal variation in vibratory noise and its impact potential on a common urban arthropod. *Under review at Entomologia Experimentalis et Applicata.*

**RESEARCH EXPERIENCE**

Aug 2019-Present ***Graduate Research Assistant*,** University of Nebraska-Lincoln

Advisor: Dr. Eileen Hebets

Comparing behavioral differences of spiders (*Agelenopsis pennsylvanica*) in urban and rural habitats with respect to vibratory noise. Assessing how noise impacts web construction and, consequently, prey detection and vibratory courtship. Gaining experience in high-performance computing and with software like RStudio, Python, RavenPro, Audacity, QGIS, and SLEAP.

May-July 2018 ***NSF-REU Summer Research Intern*,** Indiana University

Advisors: Dr. Troy Smith and graduate student, Megan Freiler

Prepared injections of saline, arginine vasotocin (AVT), and antagonist (Manning Compound) for weakly electric fish (*Apteronotus albifrons*) based on body mass. Staged and monitored aggressive contests and analyzed the videos using a behavioral logging software to determine the role of AVT in aggressive behaviors.

June-Aug 2017 ***Summer* *Undergraduate Research Assistant*,** North Central College

Advisor: Dr. Chandreyee Mitra

Reared crickets (*Acheta domesticus*) in high- or low-density conditions and paired them in aggressive contests to determine the effects of population density on aggressive behaviors. Produced an ethogram and analyzed videos using behavioral logging software (BORIS).

June-Aug 2016 ***Summer* *Undergraduate Research Assistant*,** North Central College

Advisor: Dr. Chandreyee Mitra

Collected, dissected, and compared the reproductive investment of two species of field crickets (*Gryllus pennsylvanicus and G. veletis*) that vary in seasonality and density.

**TEACHING AND MENTORSHIP**

Fall 2021-Spring 2022 ***Mentor for High School Research*,** Science Focus Program, Lincoln Public Schools

Mentored a junior high school student to design and execute an experiment as an independent research project. Measured the effect of spider size and prey availability on boldness between urban and rural habitats.

Spring 2020, ***Graduate Teaching Assistant*,** University of Nebraska-Lincoln

Fall 2021-Spring 2022 *Fundamentals of Biology II for Majors Lab*

Produced and implemented lectures to two sections (~24 students each), monitored student lab activities, and provided grading and feedback on submitted assignments.

June-Oct 2020 ***Mentor for Undergraduate Research*,** University of Nebraska-Lincoln

Mentored a senior undergraduate (Earl Agpawa) and recent graduate (Madison Hayes) of the University of Nebraska-Lincoln. Quantified differences in funnel-web spider aggregations in an urban center and an urban forest.

Fall 2019 ***Graduate Teaching Assistant*,** University of Nebraska-Lincoln

*General Biology for Non-Majors*

Presented lectures to two sections (~24 students each), monitored student lab activities, and provided grading and feedback on submitted assignments.

Apr 2016-June 2019 ***Academic Tutor*,** North Central College

*Biology, chemistry, and mathematics content*

Provided one-on-one assistance with coursework and test preparation. Held review sessions for students in introductory biology before exams. Tutored math in the North Central College Math Resource Center.

Jan-March 2018 ***Lab Assistant,*** North Central College

*Intro Biology Majors Course*

Monitored student lab activities and answered student questions about the lab or the lab report and gave feedback on lab reports.

**SCIENCE COMMUNICATION TRAINING**

November 2022 **Nebraska Science Ambassadors Program**, University of Nebraska

Attended informational and interactive meetings and discussions centered around communicating science to diverse audiences.

July 2022 **Published article in Nebraska Today**,

<https://news.unl.edu/newsrooms/today/article/performance-of-crop-boosting-bacteria-may-depend-on-delivery-method/>

Under the mentorship of University Communication’s Scott Schrage, I conducted an interview and wrote a communication piece on recent UNL research.

March 2020-Present ***Writer for Envirobites*,** <https://envirobites.org/author/bpessman/>

Wrote and edited monthly articles summarizing the findings of recent (last six months) environmental science publications.

May 2022/2021/2020 ***Writing Retreat***, University of Nebraska-Lincoln

Learned how to write SMART writing goals. Tracked writing progress to increase writing productivity. Reflected on our writing practices.

March 2021 ***Broader Impacts Training***, University of Nebraska-Lincoln

Reflected on our broader impact identity by contextualizing our research identity, origin story, and assets.

January 2021 ***Insects in Popular Culture***, University of Nebraska-Lincoln

Analyzed how insects are portrayed in popular culture, including books, films, shows, and video games. Evaluated how these media can be used as educational resources about entomology.

Fall 2020 ***Communicating Science through Outreach,*** University of Nebraska-Lincoln

Learned different forms, implementation, and evaluation of science communication. Designed a story map, wrote a children’s science news article (and received feedback from a children’s science journalist), and used social media to communicate science.

**OUTREACH**

Led class experiment in Animal Behavior Course at Southeast Community College, *Lincoln, NE* 2023

Guest Speaker in Animal Behavior Course at UNL, *Lincoln, NE* 2023

Led a day of Summer Camp at Morrill Hall, *Lincoln, NE*  2023

Volunteered at Eight-Legged Encounters Event, *Omaha, NE*  2023

Volunteered at Eight-Legged Encounters Event, *Lincoln, NE*  2022

Led an After-School Entomology Club Activity at Schoo Middle School, *Lincoln, NE* 2022

Guest Speaker in Ecology and Evolution of Arachnids Course at UNL, *Lincoln, NE*  2021/2022

Science Outreach event at the Animal Behavior Society Meeting, *San Juan, Costa Rica* 2022

Helped Plan and Implement Workshop for REU at UNL, *Lincoln, NE* 2022

Organized and Led Animal Encounter Week at Prairie Hill Summer Camp, *Roca, NE* 2022

Volunteered at Eight-Legged Encounters Event, *Kearney, NE*  2022

Volunteered at Eight-Legged Encounters Event, *Davis, CA*  2022

SciComm Video Entry, *Virtual* 2020

Sunday with a Scientist Volunteer at University of Nebraska State Museum, *Lincoln, NE*  2020

Spider Outreach Activity at Arbor Day Farm, *Nebraska City, NE*  2019

Coordinator of *Project Budburst* Brochure for Teachers in Naperville, IL 2019

Biology Summer Camp Assistant, *Naperville, IL* 2016

**SERVICE**

Panelist at Seminar for NSF Graduate Research Fellowship Applicants, *Lincoln, NE* 2023

Panelist about Graduate School for 1st Generation Students at North Central, *Virtual* 2022

Panelist at Seminar for NSF Graduate Research Fellowship Applicants, *Lincoln, NE* 2022

Getting Ready for Graduate School panelist at UNL College of Arts and Sciences, *Lincoln, NE* 2021

Panelist about Undergraduate Research for 1st Generation Students at North Central, *Virtual* 2021

Biology, Math, and Chemistry Tutor, *Naperville, IL* 2016-2019

REU Panel Volunteer*, Naperville, IL* 2019

Science Fair Judge at Camelot School for children with special needs, *Naperville, IL* 2018

Naperville Area Humane Society Volunteer, *Naperville, IL* 2015 – 2017

Breakaway Mission Trip Volunteer, *Detroit, MI* 2016

**GRANTS AND FELLOWSHIPS**

*Graduate Research Fellowship*, National Science Foundation 2020-2025

*Blair Paxton Udale Fund for Life Sciences Fellowship*, University of Nebraska-Lincoln 2020/2021

*Indiana University REU Summer Research Fellowship*, National Science Foundation 2018

*Summer Undergraduate Research Fellowship*, North Central College 2016/2017

**HONORS AND AWARDS**

*Participant in the Open Science Grid User School,* University of Wisconsin-Madison2023

*First Place Talk at Department BioGSA Symposium*, University of Nebraska-Lincoln2023

*Graduate Student Poster Award,* University of Nebraska-Lincoln Research Days 2023

*Second Place Student Talk,* International Invertebrate Sound and Vibration Conference, Virtual 2023

*First Place Founders Memorial Graduate Poster Award,* Animal Behavior Society, Costa Rica2022

*CREATE-Adapted Primary Literature Workshop,* University of Nebraska-Lincoln2021

*Third Place Poster at Department BioGSA Symposium*, University of Nebraska-Lincoln2021

*Honorable Mention for Graduate Research Fellowship*, National Science Foundation 2019

*Biology Major of the Year*, North Central College 2019

*Honorable Mention for Genesis Undergraduate Poster Award*, Animal Behavior Society 2018

*Honorable Mention for the Barry Goldwater Scholarship*, Goldwater Foundation 2018

*Dean’s List*, North Central College 2015-2019

**PROFESSIONAL PRESENTATIONS**

**Pessman, B.** & Hebets, E. (2023) *Adjusting to Environmental Noise: Urban versus rural spiders respond to and adjust their webs differently in different vibratory noise environments*. Oral Presentation at Sensorium, Chicago, Illinois.

**Pessman, B.** & Hebets, E**.** (2023) *Vibratory noise affects prey capture and web structure of the funnel-weaving spider, Agelenopsis pennsylvanica*. Oral Presentation at the Animal Behavior Society, Portland, Oregon.

**Pessman, B.** & Hebets, E**.** (2023) *Vibratory noise may affect prey capture and web structure of the funnel-weaving spider, Agelenopsis pennsylvanica*. Oral Presentation at the Biology Graduate Student Association Symposium, University of Nebraska-Lincoln.

**Pessman, B.,** Hayes, M., Agpawa, E., & Hebets, E**.** (2023) *Urbanization affects web aggregation and placement of a funnel weaver, Agelenopsis pennsylvanica*. Poster Presentation at the University of Nebraska-Lincoln Student Research Days.

**Pessman, B.** & Hebets, E**.** (2023) *Vibratory noise may affect prey capture and web structure of the funnel-weaving spider, Agelenopsis pennsylvanica*. Oral Presentation at the International Invertebrate Sound and Vibration Conference, Virtual.

**Pessman, B.** & Hebets, E**.** (2022) *Unpredictable vibratory environments affect prey capture and web structure of the funnel-weaving spider Agelenopsis pennsylvanica*. Oral Presentation at the 3rd Annual International Biotremology Conference, Virtual.

**Pessman, B.,** Hayes, M., Agpawa, E., & Hebets, E**.** (2022) *Urbanization affects web aggregation and placement of a funnel weaver, Agelenopsis pennsylvanica*. Poster Presentation at the Animal Behavior Society Meeting, San Juan, Costa Rica.

**Pessman, B.** & Hebets, E**.** (2022) *Unpredictable vibratory environments affect prey capture and web structure of the funnel-weaving spider Agelenopsis pennsylvanica*. Oral Presentation at the American Arachnological Society Meeting, Davis, California.

**Pessman, B.,** Hayes, M., Agpawa, E., & Hebets, E**.** (2022) *Urbanization affects web aggregation and placement of a funnel weaver, Agelenopsis pennsylvanica*. Poster Presentation at the Biology Graduate Student Association Symposium, University of Nebraska-Lincoln, Virtual.

**Pessman, B.** & Hebets, E. (2021)*. Spatiotemporal variation in vibratory noise across rural-urban landscapes*. Poster Presentation at the Animal Behavior Society Meeting, Virtual.

**Pessman, B.,** Hayes, M., Agpawa, E., & Hebets, E**.** (2021) *Urbanization increases web aggregation of funnel-web spiders, Agelenopsis pennsylvanica*. Oral Presentation at the American Arachnological Society Meeting, Virtual.

**Pessman, B.** & Hebets, E. (2021). *Spatiotemporal variation in vibratory noise across rural-urban landscapes*. Poster Presentation at the Biology Graduate Student Association Symposium, University of Nebraska-Lincoln, Virtual.

**Pessman, B.,** Hayes, M., Agpawa, E., & Hebets, E. (2021). *Urbanization increases web aggregation of funnel-web spiders,* *Agelenopsis*. Twitter feed at the Animal Behavior Twitter Conference, Virtual.

**Pessman, B.,** Freiler, M. K., & Smith, G. T. (2019). *Vasotocin and social experience affect aggression and electrocommunication in a weakly electric fish (Apteronotus albifrons).* Poster presentation at the Animal Behavior Society Meeting, University of Illinois-Chicago, Chicago, IL.

**Pessman, B.,** Freiler, M. K., & Smith, G. T. (2019). *Vasotocin and social experience modulate aggression and electrocommunication in black ghost knifefish (Apteronotus albifrons).* Poster Presentation at the Rall Symposium, North Central College, Naperville, IL.

**Pessman, B.,** Rae, R., & Mitra, C. (2018). *Juvenile social environment results in alternative mating strategies in Acheta domesticus males*. Poster presentation at the Animal Behavior Society Meeting, University of Wisconsin, Milwaukee, WI.

**Pessman, B.** &Mitra, C. (2018). *The effect of rearing density and female presence on the aggressive behaviors of male Acheta domesticus.* Oral presentation at the Rall Symposium, North Central College, Naperville, IL.

**Pessman, B**. & Mitra, C. (2018). *The effect of rearing density and female presence on the aggressive behaviors of male Acheta domesticus.* Oral presentation at the National Conference for Undergraduate Research, University of Central Oklahoma, Oklahoma City, OK.

**Pessman, B.,** Kreckman, J., & Mitra, C. (2017). *Plasticity and Reproductive Investment: A comparative study of reproductive morphs of three field cricket species*. Poster presentation at the Midwest Ecology and Evolution Conference, University of Illinois, Urbana-Champain, IL.

**Pessman, B.,** Kreckman, J., & Mitra, C. (2017). *Plasticity and Reproductive Investment: A comparative study of reproductive morphs of three field cricket species*. Poster presentation at the Rall Symposium, North Central College, Naperville, IL.

**PROFESSIONAL ORGANIZATION MEMBERSHIPS**

*International Society of Arachnology* 2022-Present

*American Arachnological Society* 2020-Present

*Animal Behavior Society* 2018-Present

*Sigma Xi,* Scientific Research Honor Society 2020-2021

*Association for Women in Science* 2020-2021

*Pi Mu Epsilon*, Mathematics Honor Society 2019-2020

*Tri-Alpha*, First Generation Honor Society 2019-2020

*Tri-Beta*, Biology Honor Society 2017-2020

Served as Vice President 2018-2019

*Alpha-Lambda-Delta*, First Year Honor Society 2016-2020

**DATA SCIENCE TRAINING**

Udemy 100 Days of Code: The Complete Python Pro Bootcamp for 2023 In Progress

Open Science Grid (OSG) User School, *University of Wisconsin-Madison* 2023

Learned High-Throughput Computing using the national-scale Open Science Pool

Two-Day Workshop - Bash, Git, & Python via Software Carpentry, *University of Nebraska-Lincoln* 2023

Data Science and Visualization in R, *University of Nebraska-Lincoln* 2021

Ecological Statistics in R, *University of Nebraska-Lincoln* 2021

Mathematical Models in Biology, *University of Nebraska-Lincoln* 2020

Probability and Statistics I, *North Central College* 2019

Probability and Statistics II, *North Central College* 2018

Linear Algebra, *North Central College* 2018

Computer Science, *North Central College* 2017