Jacob E. Herschberger

Ph.D. Candidate and Graduate Assistant • University of Florida

Department of Entomology and Nematology • EYN 2128

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Education

Ph.D. *University of Florida,* Entomology and Nematology, Gainesville, FL *2022-present*

Dissertation: "Plant chemical defense optimization across latitude gradients"

- Quantified herbivore defense traits variance and correlation in plants across a latitudinal gradient and resource availability

Advisor: Dr. Phil Hahn

M.S. *The University of Alabama,* Biological Sciences, Tuscaloosa, AL *2022*

Thesis: "Neighboring plants and herbivory influence pollinator attraction"

- Investigated floral volatile production and seed set in relation to herbivory and conspecific density
- Surveyed pollinator species, flowering species, and collected volatile organic compounds (VOCs) from flowering species to construct plant-pollinator-VOC networks

Advisor: Dr. Monica Kersch-Becker

B.S. *Millersville University of Pennsylvania,* Biology Department, Millersville, PA *2019*

Senior project: "Plant fitness and insect-feeding choice in response to induced herbivory"

- Designed an insect-olfactometer to quantify the insect choice of grass plants from different cutting regimes
- Quantified plant-fitness response when exposed to different cutting frequency regimes of different grass plant varieties

Advisors: Drs. John Wallace and Christopher Stieha

Publications

2. **Herschberger, J. E.**, Ciesla, L., Stieha, C. R., & Kersch-Becker, M. F. (2024). Impacts of ramet density and herbivory on floral volatile emissions and seed production in Solidago altissima. American Journal of Botany, 111(10), e16414.

1. dos Santos, D. F. B., **Herschberger, J. E.**, Subedi, B., Pocius, V. M., Neely, W. J., Greenspan, S. E., Becker, C. G., Romero, G. Q., & Kersch-Becker, M. F. (2024). Leaf shelters facilitate the colonisation of arthropods and enhance microbial diversity on plants. Ecology Letters, 27(9), e14499.

Conference Presentations

Herschberger JE, Calixto ES, & Hahn PG. **2024**. Facilitation between herbivores across a latitudinal gradient mediated by plant traits. Entomological Society of America Conference (southeastern branch meeting), Portland, OR.

Herschberger JE, Calixto ES, & Hahn PG. **2024**. Defense trait trade-offs in *Solanum carolinense* across latitudinal gradients. North Florida Research Center Conference, Quincy, FL.

Herschberger JE, Calixto ES, & Hahn PG. **2023**. Defense and floral trait trade-offs in *Solanum carolinense* across a latitudinal gradient. Ecological Society of America Conference, Portland, OR.

Herschberger JE, Calixto ES, & Hahn PG. **2023**. Defense trait trade-offs in *Solanum carolinense* across latitudinal gradients. Gorden Research Conference, Ventura, CA.

Herschberger JE, & Kersch-Becker MF. **2021**. Volatile organic compound (VOC) emissions and seed set of *Solidago altissima* in response to herbivory and conspecific density. Entomological Society of America Annual Conference, Denver, CO.

Herschberger JE, Kersch-Becker MF, Greenspan SE, Neely WJ, Becker CG, & Romero GQ. **2020**. Leaf rolling caterpillars facilitate arthropod community and microbiome on plants. Entomological Society of America Annual Conference, (Virtual).

Herschberger JE, Stieha CR, & Wagner RL. **2019**. Plant fitness responses and insect-feeding choice in response to induced herbivory. Commonwealth of Pennsylvania University Biologists, Edinboro, PA.

Herschberger JE, Stieha CR, & Wagner RL. **2019.** Plant fitness responses and insect-feeding choice in response to induced herbivory. Native Plants in the Landscape Conference, Millersville, PA.

Grants and Fellowships

Travel grant award, *Ecological Society of America Conference* ($350) *Fall 2023*

Conference fee award, *Gordon Research Conference* ($435) *Spring 2023*

Grinter Fellowship*, University of Florida* ($4000) *Fall 2022-Spring 2023*

Fall 2021 Research & Conference Funding, *University of Alabama* ($655) *Fall 2021*

Tanglewood Research Award, *University of Alabama* ($2000) *Summer 2021*

Tanglewood Fellowship, *University of Alabama* ($4941) *Summer 2021*

Entomology society of America conference fees, *University of Alabama* ($47) *Fall 2020*

Research skills/Knowledge

Research grant writing. Constructing field experimental designs and protocols. Dynamic headspace VOC collection in field experiments. Quantitative and qualitative chemical analysis with GC-MS. R analysis, data manipulation, and data representation. Some multivariate analysis such as principal component analysis and non-metric multidimensional scaling in R. Creating general linearized models and testing them in R-stats.

Teaching Experience

ENY 3005L/5006L: Principles of Entomology Lab, *University of Florida* *2023-2025*

-Taught students basic entomological concepts and guided students through various lab activities

BSC 117: Laboratory Biology II, *University of Alabama* *2020-2022*

- Taught the students observation skills to analyze basic organismal structure and function while promoting understanding of biological principles

BSC 386: General Ecology Lab, *University of Alabama* *Fall 2021 & Summer 2022*

-Prepared teaching material, graded assignments, and assisted students in completing assignments

BSC 115: Laboratory Biology I, *University of Alabama* *Summer & Fall 2020*

-Taught the students laboratory fundamentals, such as using basic laboratory equipment, scientific methods, techniques, and analysis to investigate basic cellular processes

Professional Experience

Land Steward- Lancaster County Conservancy *Summer 2017, 2018, & 2019*

- Performed general ground maintenance, erosion control, trail maintenance, tree grove care, invasive species removal, inventory and data collection

Interpretive Ranger- Lancaster County Conservancy *Summer 2018 & 2019*

- Monitored preserves and provided information for preserve visitors

Math and Science Tutor- HACC *August 2016-May 2019*

- Tutored and assisted individuals to help them master assignments and to reinforce learning concepts presented by teachers

Service Experience

Undergraduate Research Judge-The University of Alabama *April 2022*

Conference Session Moderator-Entomological Society of America *November 2020*

Stream Testing Volunteer- Water Quality Volunteer Coalition *October 2017-November 2019*

Campus Apiary Manager- Millersville University *June 2017-June 2019*

Conference Volunteer- Entomological Society of Pennsylvania *November 2018*

Awards

Outstanding Biology Student ($200) *Spring 2019*

-Commonwealth of Pennsylvania University Biologists

Participation in Student Research- Millersville University *2018-2019*

Dean's List- Millersville University *Spring 2018*

Dean's List- HACC *2014-2015 & Spring 2016*

References

Dr. Phil Hahn
Assistant Professor, Department of Entomology and Nematology at University of Florida
Contact: (352) 273-3960 or hahnp@ufl.edu
Professional Relationship: Dr. Han supervised my research on plant chemical defense optimization across latitudinal gradients.

Dr. Monica F. Kersch-Becker

Assistant Professor, Department of Biological Sciences at The University of Alabama
Contact: (205)-242-8996 or mfkerschbecker@ua.edu
Professional Relationship: Dr. Kersch-Becker supervised my research on the effects of neighboring plants and herbivory on pollinator attraction via volatile organic compounds.

Dr. Christopher Stieha
Assistant Professor, Department of Biology at Millersville University
Contact: (717)-871-4081 or christopher.stieha@millersville.edu
Professional Relationship: Dr. Stieha supervised my research on plant fitness and insect-feeding choice in response to induced herbivory.