Margaret T. Lewis, PhD

Postdoctoral Scholar
Department of Entomology
The Ohio State University

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Education

2017 - 2021 **University of Maryland, Ph.D.** (Entomology)
Advisor: Dr. Kelly Hamby
Dissertation: Applying insect ecology and behavior to advance sustainable management of spotted-wing drosophila (*Drosophila suzukii*).

2013 - 2015 **The Pennsylvania State University, MS** (Entomology)
Advisor: Dr. Shelby Fleischer
Thesis: Advancing ecologically-based management of *Acalymma vittatum*, a key pest of cucurbit crops

2008 - 2012 **University of California, Berkeley, BS** (Molecular Environmental Biology)

Professional Experience

2023 – **Postdoctoral Scholar, The Ohio State Unviersity Entomology Department**
Advisor: Dr. Andrew Michel, Department of Entomology, Ohio State University

2021 – 2023 **NSF Postdoctoral Fellow in Biology**
Advisor: Dr. Andrew Michel, Department of Entomology, Ohio State University
Developed and led research project examining how abiotic stress impacts host plant resistance in soybeans

2021 **Postdoctoral Associate, University of Maryland Entomology Department**
Advisor: Dr. Kelly Hamby
Analyzed data, drafted grant reports, prepared extension articles and manuscripts

2015 - 2017 **Faculty Research Assistant, University of Maryland Entomology Department**
Supervisor: Dr. Kelly Hamby
Served as general lab manager. Prepared reports for granting agencies and grower collaborators. Hired and trained undergraduate researchers. Inventoried and ordered supplies, maintained lab equipment, and coordinated laboratory safety.

2013 **Field Research Technician, University of North Carolina, Chapel Hill**
Supervisor: Miranda Welsh
Assisted with data collection as part of a multi-year field study investigating the ecology of Barley Yellow Dwarf Disease in native and invasive California grasses.

2012 **Field Research Technician, B4Warmed Project, University of Minnesota**
Supervisor: Karen Rice
Assisted with data collection as part of a multi-year field study investigating the impact of climate change on Minnesota Forests.

Awards and Fellowships

2022	**John Henry Comstock Graduate Student Award, Eastern Branch** Sponsored by the Entomological Society of America, awarded to an outstanding PhD student from each regional branch.
2021	**NE IPM Center – Outstanding Achievement in IPM Award** Graduate Student Category
2020	**Deans Fellowship** Merit-based fellowship administered by the College of Math and Natural Sciences at the University of Maryland ($2,500)
2020 - 2021	**Ann G. Wiley Dissertation Fellowship** Competitive fellowship administered by the University of Maryland Graduate School to support doctoral candidates in the latter stages of writing ($18,000)
2019	**Charlie Mitter Travel Award** Administered by the University of Maryland Entomology Department to support travel to the 2019 Entomological Society of America Meeting in St. Louis, MO ($250)
2019 - 2021	**Second Place in Eastern Branch Linnaean Games Competition** Advanced to national level competition, team received $1,000 travel award annually
2018 - 2019	**Gahan Fellowship** Fellowship to stimulate excellence in graduate research in the Department of Entomology at the University of Maryland. Provides a stipend that supplemented a half-time teaching assistantship ($12,000)
2017	**Goldhaber Travel Award** Administered by the University of Maryland Graduate School to support travel to the 2017 Entomological Society of America Meeting in Denver, CO ($400)
2014	**Yendol Travel Award** Administered by Pennsylvania State University Entomology to support travel to the 2014 Entomological Society of America Meeting in Portland, OR ($500)
2013 - 2014	**Black Endowed Graduate Fellowship** Merit-based Pennsylvania State University fellowship to support one year of graduate study ($40,000)
2013 - 2014	**Robert W. Graham Endowed Fellowship** Merit-based Pennsylvania State University fellowship for incoming students to support graduate student ($4,000)

Grants Received ($786,768 Total)

2023-2025	**AFRI Foundational Program ($552,890)**. Bottom-up trophic cascades: how a changing climate can shift plant-pest-natural enemy dynamics. Co-PI with Lead PI Andrew Michel and Co-PIs Larry Phelan and Rana Parshad (led grant writing but could not serve as lead PI)
2022-2023	**Momental Foundation ($10,000).** Mistletoe Fellowship Unfettered Research Grant (led grant writing but could serve as lead PI)

2021-2023 **NSF Postdoctoral Research Fellowships in Biology Program ($138,00).** "Predicting How Climate Change Will Impact Insect Adaptation to Host Plant Resistance". Lead PI with Co-PI Andrew Michel.

2020-2021 **Maryland Agricultural Experimental Station Competitive Grant Program. ($29,994).** "Interactions between spotted-wing drosophila and fruit rot fungi in fall red-raspberries". Co-PI with Lead PI Kelly Hamby and Co-PI Mengjun Hu (led grant writing but could not serve as Lead PI)

2019-2021 **North Eastern Sustainable Agriculture and Research Education Program. ($14,994).** "Understanding Spotted Wing Drosophila's Role as Vector for Fruit Rot Fungi in Fall Red Raspberries". Co-PI with Lead PI Kelly Hamby (led grant writing but could not serve as Lead PI).

2018-2019 **Maryland State Horticultural Society. ($2,000).** "Optimizing Carrier Water Volume For Improving Management of Spotted Wing Drosophila and Botrytis Fruit Rot in Maryland Raspberries". Lead PI with Co-PI Kelly Hamby.

2017-2018 **Maryland State Horticultural Society. ($1,500).** "Integrating Pruning and Carrier Water Volume for Optimized Spray Coverage and Management of Spotted-Wing Drosophila in Fall-Bearing Raspberries". Lead PI with Co-PI Kelly Hamby.

2016-2018 **Maryland Department of Agriculture. ($30,640).** "Optimizing Chemical Management Strategies for Improved Sustainability and Control of *Drosophila suzukii* in Maryland Raspberries". Lead PI with Co-PI Kelly Hamby.

2016-2017 **Maryland State Horticultural Society. ($2,250).** "Optimizing Carrier Water Volume for Improved Spray Coverage and Management of Spotted-Wing Drosophila in Raspberries". Lead PI with Co-PI Kelly Hamby.

2014-2015 **Pennsylvania Vegetable Growers Association. ($4,500).** "Striped Cucumber Beetle Management with Plant and Microbial Metabolites". Co-PI with Lead PI Shelby Fleischer and Co-PI Timothy Elkner.

Peer Reviewed Publications

10. **Lewis**, **M.T.**, Miller, L., Hu, M., and K.A. Hamby. *In Press.* Evaluating *Drosophila suzukii* as a potential vector for caneberry fruit rot pathogens. *Phythopathology.*

9. Isaacs R., Van Timmeren, S., Gress, B., Zalom, F.G., Ganjisaffar, F. Hamby, K.,A. **Lewis, M.T**. Liburd, O., Sarkar, N., Rodriguez-Saona, C., Holdcraft, R., Burrack, H., Toennisson, A. Drummond, F., Spaulding, N., Lanka, S., and A. Sial. 2022. Monitoring of spotted-wing drosophila (Diptera: Drosophilidae) resistance status using a RAPID method for assessing insecticide sensitivity across the United States. *J. Econ. Entomol.*

8. Schöneberg, T., **Lewis**, **M.T.**, Rendon, D., Grieshop, M., Rogers, Rothwell, N., M., Burrack, H.J., Isaacs, R., A.A. Sial, Walton, V.M., and. K.A. Hamby. 2021. Cultural control of *D. suzukii* in small fruit – Current and Pending Tactics (Review Paper). *Insects.*

7. **Lewis, M.T.** and K.A. Hamby. 2020. Optimizing caneberry spray coverage for *Drosophila suzukii* (Diptera: Drosophilidae) management on diversified fruit farms. *J. Econ. Entomol.* 113: 2820-2831.

6. Coco, A. M., **Lewis, M. T.,** Fleischer, S. J., and J. F. Tooker. 2020. Parasitoids, nematodes, and protists in populations of striped cucumber beetle (Coleoptera: Chrysomelidae). *Environ. Entomol.* https://doi.org/10.1093/ee/nvaa116.

5. Dubey, A., **Lewis, M. T.,** Dively, G. P., and K. A. Hamby. 2020. Ecological impacts of pesticide seed treatments on arthropod communities in a grain crop rotation. *J. Applied Ecology.* 57: 936-951.

4. **Lewis, M.T** and K.A. Hamby. 2019. Differential impacts of yeast on the feeding behavior and development of larval *Drosophila suzukii* (Diptera:Drosophilidae). *Sci. Rep.* 9: 13370.

3. **Lewis, M.T**., Koivunen, E., Swett, C.L, and K.A. Hamby. 2019. Associations between *Drosophila suzukii* (Diptera: Drosophilidae) and fungi in raspberries. *Environ. Entomol.* 48: 68-79.

2. Nelson, J.L., Hunt, L.G., **Lewis, M.T**., Hamby, K.A., Hooks, C.R.R., and G.P. Dively. 2017. Arthropod communities in warm and cool grass riparian buffers and their influence on natural enemies in adjacent crops. *Agric. Ecosys. Environ.* 257: 81-91.

1. **Lewis, M.T**., Fleischer, S.J., and D.C. Roberts. 2016. Horticultural production practices influence ground beetle (Coleoptera: Carabidae) distribution and diversity in cucurbits. *Environ. Entomol.* 45(3): 559-569.

Extension Publications (13 Total)

13. **Lewis, M.T.** and A.W. Leslie. 2020. Squash bugs in cucurbits. *Fruit and Vegetable Headline News.* 11(4).

12. **Lewis, M.T.** and K.A. Hamby. 2019. Does spray coverage impact spotted-wing drosophila management in raspberries? *Fruit and Vegetable Headline News.* 10(4).

11. **Lewis, M.T.** and K.A. Hamby. 2019. Spray coverage impacts on spotted-wing drosophila management in raspberries. Handout for the University of Maryland Twilight Tours: CMREC (August 7th, 2019) and WMREC (August 15th, 2019)

10. **Lewis, M.T.** and K.A. Hamby. 2018. Optimizing spray coverage in fall-bearing raspberries and blackberries. *Fruit and Vegetable Headline News.* 9(7).

9. **Lewis, M.T.** and K.A. Hamby. 2018. Optimizing spray coverage in fall-bearing raspberries and blackberries. *Horticultural Technology.*

8. **Lewis, M.T.**, B. Butler, and K.A. Hamby. 2017. Optimizing carrier water volume for enhanced spray coverage in brambles. University of Maryland Twilight Tours: WMREC August 17, 2017 and WyeREC August 2, 2017

7. Hamby, K., B. Butler, **M.T. Lewis**, and C. Taylor. 2017. Updates on spotted wing drosophila management for diversified small fruit farms. *62nd New Jersey Agricultural Convention and Trade Show 2017 Proceedings*: February 7-9, 2017 p., 87-89.

6. Arsenault-Benoit, A., **Lewis, M.T**., Butler, B., Taylor, C., and K.A. Hamby. 2017. Management of Spotted Wing Drosophila on Diversified Small Fruit Farms: An Update. *Mid-Atlantic Fruit and Vegetable Convention 2017 Proceedings:* January 31-February 2, 2017.

5. **Lewis, M.T.,** Butler, B., and K.A. Hamby. 2016. Optimizing carrier water volume for enhanced spray coverage in raspberries. *Horticultural Technology*.

4. **Lewis, M.T.,** Butler, B., and K.A. Hamby. 2016. Optimizing carrier water volume for enhanced spray coverage in raspberries. *Fruit and Vegetable Headline News.* 7(6).

3. Fiola, J.A., **Lewis, M.T.,** and K.A Hamby. 2014. "The Spotted Wing Drosophila (SWD) - Part 1: History, Background, and Damage. *Timely Viticulture*.
2. Fiola, J.A., **Lewis, M.T.,** and K.A. Hamby. 2014. "The Spotted Wing Drosophila (SWD) - Part 2: Management. *Timely Viticulture*.
1. **Lewis, M.T.,** Elkner, T., and S.J. Fleisher. 2015. "Integrating Plant and Microbial Metabolites for Control of Striped Cucumber Beetle" (Poster). *Mid-Atlantic Fruit and Vegetable Convention.* Hershey, PA

Invited Talks *First Author denotes speaker

11. **Lewis, M.T.,** Blakeslee, J.J., Poelstra, J.P., and A.P. Michel. 2023. Differential Impacts of Host Plant Flooding Stress on Virulent and Avirulent Aphid Biotypes. Annual Meeting of the American Chemical Society. San Francisco, CA (~25 people).
10. **Lewis, M.T.** 2023. Bringing Soybean Aphids into the Classroom (talk and interactive-workshop). GrowNextGen Ag Biotechnology Workshop. Lewis Center, Ohio. (21 people).
9. **Lewis, M.T.,** Blakeslee, J.J., Poelstra, J.P., and A.P. Michel. 2023. Differential Effects of Flooding on Soybean Aphid Biotypes. Joint North Central and Southwestern Branch Meeting of the Entomological Society of America. Oklahoma City, OK. (~45 people)
8. **Lewis, M.T.** and J. Hunt. 2023. Soybeans and the soybean aphid: applications to Ohio Learning Standards. Science Education Council of Ohio Annual Meeting. Lewis Center, OH.
7. **Lewis, M.T.** 2023. Bringing soybean aphids into the classroom (talk and interactive workshop). GrowNextGen Teacher Leader Training Session. Lewis Center, OH.
6. **Lewis, M.T.,** Hu, M.J., and K.A. Hamby. 2022. Potential vectoring associations between spotted-wing drosophila and caneberry fruit rot fungi (Comstock Award Talk). Eastern Branch Meeting of the Entomological Society of America. Philadelphia, PA..
ß **Lewis, M.T.,** L.M. Miller, and K.A. Hamby. 2020. Evaluating spotted-wing drosophila as a vector of fruit rot fungi. Joint Annual Meeting for the Eastern and Southeastern Branches of the Entomological Society of America. Atlanta, GA. **Cancelled due to COVID-19*
4. **M.T. Lewis** and K.A. Hamby. 2019. "Interactions between spotted-wing drosophila and fruit rot fungi in fall red-raspberries". National Meeting for American Chemical Society. San Diego, CA.
3. **M.T. Lewis** and K.A. Hamby. 2018. "Associations between *Drosophila suzukii* and fungal microbes". National Meeting for American Chemical Society. Boston, MA.
2. Hamby, K. A. and **M. T. Lewis**. 2018. "Mid-Atlantic Section of the American Society of Plant Biologists and University of Maryland Spring Plant Biology Symposium, *Section: Plant-Insect Interactions: From Pests to Mutualists.* Seminar: "Insect interactions with microorganisms and their utility for management of fruit pests". Estimated Attendance ~80.
1. **M.T. Lewis** and K. Hamby. 2017. "Understanding interactions between *Drosophila suzukii* and it yeast microbes: implications for larval fitness and development". National Meeting for American Chemical Society. Washington, DC.

Contributed Talks and Posters *First Author Denotes Speaker

16. **Lewis, M.T.,** Poelstra, J.W., and A.P. Michel. 2022. "Differential Impacts of Host Plant Water Stress on Soybean Aphid Biotypes". Annual Meeting of the Entomological Society of America. Vancouver, BC.

15. **M.T. Lewis,** M.J. Hu, and K.A. Hamby. 2021. "Evaluating *Drosophila suzukii* as a potential vector for raspberry fruit rot pathogens". Annual Meeting of the Entomological Society of America. Virtual Presentation.

14. **M.T. Lewis,** M.J. Hu, and K.A. Hamby. 2021. "Assessing *Drosophila suzukii* as a vector of raspberry fruit rot fungi". Eastern Branch Meeting of the Entomological Society of America. Virtual Meeting. (~55 people) * *Won first place in PhD student competition*

13. **M.T. Lewis,** M.J. Hu, and K.A. Hamby. 2020. "Associations between spotted-wing drosophila and raspberry fruit rot fungi". Annual Meeting for the Entomological Society of America. Virtual Meeting.

12. **M.T. Lewis** and K.A. Hamby. 2019. "Optimizing carrier water volume for improved management of spotted-wing drosophila in Maryland brambles". Annual Meeting for the Entomological Society of America. St. Louis, MO. (~20 people).
* *Won first place in graduate student competition*

11. **M.T. Lewis** and K. A. Hamby. 2019. "Optimizing spray coverage for management of spotted-wing drosophila". Mid-Atlantic Vegetable and Small Fruit Workers Meeting (regional meeting). Newark, DE. 6 November, 2019 (27 people).

10. Dubey, A.D., **Lewis, M.T.,** Dively, G.P., and K.A. Hamby. 2019. "Disruption of arthropod communities by pesticide seed treatments in a grain crop rotation". Annual Meeting of the Entomological Society of America. St. Louis, MO.

9. **M.T. Lewis** and K.A. Hamby. 2019. "Can spotted-wing drosophila vector fruit rot fungi in raspberries". Graduate Student Research Appreciation Day Conference. College Park, MD.
* *Won second place in biological sciences category*

8. **M.T. Lewis** and K.A. Hamby. 2019. "Associations between *Drosophila suzukii* and fruit-rot fungi in fall red-raspberries". Annual Meeting for the Eastern Branch Section of the Entomological Society of America. Blacksburg, VA.
* *Won first place in PhD student competition*

7. Dubey, A.D., **Lewis, M.T.,** Dively, G.P., and K.A. Hamby. 2019. "Do neonicotinoid seed treatments affect arthropod communities in grain crops?". Annual Meeting for the Eastern Branch of the Entomological Society of America. Blacksburg, VA.

6. **M.T. Lewis** and K.A. Hamby. 2018. "Associations between *Drosophila suzukii* and fruit-rot fungi in fall red-raspberries". Joint Annual Meeting of the Entomological Society of America and the Entomological Societies of British Columbia and Canada. Vancouver, CA.

5. **M.T. Lewis**, E.E. Koivunen, C.L. Swett, and K.A. Hamby. 2018. "Effect of *Drosophila suzukii* on yeast and fruit-rot fungi in fall red-raspberries". Eastern Branch Meeting of the Entomological Society of America. Annapolis, MD.

4. **M.T. Lewis** and K. Hamby. 2017. "Characterizing the interactions between spotted wing drosophila and its yeast associates". Annual Meeting of the Entomological Society of America. Denver, CO.

3. Arsenault-Benoit, A., **Lewis, M.T**., Taylor, C., Butler, B., and K.A. Hamby. 2017. "WERA 1021: Spotted Wing Drosophila Management in Maryland" (Poster). Annual Meeting of the

Entomological Society of America. Denver, CO.

2. **M.T. Lewis**, T. Elkner, and S.J. Fleischer. 2016. "Integrating Plant and Microbial Metabolites as a Biorational Control for Striped Cucumber Beetle". Annual Meeting of the Entomological Society of America. Minneapolis, MN.

1. **M.T. Lewis** and S.J. Fleisher. 2015. "Cucurbit Production Practices and their Impact on Beneficial Insect Conservation." Annual Meeting of the Entomological Society of America. Minneapolis, MN

Extension Presentations *First Author Denotes Speaker

18. **Lewis, M.T.** and A.P. Michel. "Changing Climate and Insect Pests: Implications for Insect Resistance Management". Webinar. March 2023 (~20 people).

17. **Lewis, M.T.** and A.P. Michel. "Using Bt Test Strips in Corn". Station that workshop participants rotated through during Ohio Agribusiness Association meeting. February 2023 (~60 people).

16. **Lewis, M.T.,** Hu, M.J., and Hamby, K.A. "Spray coverage for spotted-wing drosophila management in caneberries". Winter Fruit Meeting. December 2020 (43 people).

15. **Lewis, M.T.,** Hu, M.J., Leslie, A.W., and Hamby, K.A. "Assessing SWD as a Vector of Fruit Rot Fungi". Virtual field day in lieu the Upper Marlboro Crops Twilight Meeting and Tour.

14. **Lewis, M.T.** and Hamby, K.A. "Small Fruit Insect Management Update". Bay Area Fruit Meeting. Queenstown, MD. February 2020 (~40 people).

13. **Lewis, M.T**., and Hamby, K.A. "Spray Coverage Impacts on Spotted-Wing Drosophila Control". WMREC Horticultural Crops Twilight Meeting and Tour. August 15th 2019 (~50 people).

12. **Lewis, M.T.,** and Hamby, K.A. "Spray Coverage Impacts on Spotted-Wing Drosophila Control". Upper Marlboro Crops Twilight Tour. August 7th 2019 (81 people).

11. **Lewis, M.T.,** and Hamby, K.A. "Spotted Lanternfly Update and Spotted-Wing Drosophila's Interactions with Fungi". Bay Area Fruit Meeting. Queenstown, MD. February 2019 (~ 50 people).

10. **Lewis, M.T*,** Arsenault-Benoit, A.*, and K. Hamby. "Advancing Chemical Management and Cultural Control for Spotted Wing Drosophila". Western Maryland Regional Fruit Meeting. Keedysville, MD. 2nd February 2018. (* Denotes co-first authors)

9. **Lewis, M.T*,** Arsenault-Benoit, A.*, and K. Hamby. "Advancing Chemical Management and Cultural Control for Spotted Wing Drosophila". Mt. Top Fruit and Vegetable Conference. December 19th, 2017. (* Denotes co-first authors)

8. **Lewis, M.T.*, Arsenault-Benoit, A.*,** Butler, B., Taylor, C., and K. Hamby. "Update on Spotted Wing Drosophila Research". WMREC Horitcultural Crops Twilight Meeting and Tour (~55 people). August 18th, 2017.

7. Hamby, K., B. Butler, **M.T. Lewis,** and C. Taylor. "Current Research on Spotted Wing Drosophila Management in Small Fruits" Western Maryland Regional Fruit Meeting, Keedysville, MD, February 16, 2017

6. **Lewis, M.T.** and K.A. Hamby."Cucumber Beetle Management". Southern Maryland Vegetable Conference. Clements, MD. February 8th, 2017 (~50 people).

5. **Lewis, M.T.** and K.A. Hamby. "Cucumber Beetle Management". Eastern Shore Vegetable Meeting. Cambridge, MD. February 7th, 2017. (~30 people).

4. Hamby, K.A., B. Butler, **M.T. Lewis,** and C. Taylor. "Current Research on Spotted Wing Drosophila Management in Small Fruits" Bay Area Fruit School, Queenstown, MD, February 17, 2017
3. Hamby, K., B. Butler, **M.T. Lewis**, and C. Taylor. "Updates on Spotted Wing Drosophila Management for Diversified Small Fruit Farms" New Jersey Agricultural Convention and Trade Show, Atlantic City, NJ, February 7-9, 2017 (~40 people)
2. **Lewis, M.T.** and K.A. Hamby. "Updates on Spotted Wing Drosophila Research". Maryland State Horticultural Society Summer Tour. July 13th, 2016. (~75 people)
1. **Lewis, M.T.** and S.J. Fleisher. "Cucumber Beetle Management". Lancaster Vegetable Meeting. Leola, PA. March 17th, 2015. (~50 people)

Service

NSF Using the Rules of Life Workshop and Postdoc Incubators. *March – May 2022.*
Participated in the Rules of Life Workshop and associated postdoc incubators that were hosted by the National Science Foundation. As part of these virtual events, I worked in small, multi-disciplinary teams to discuss how we could apply the Rules of Life (one of NSF's 10 Big Ideas) towards solving overarching societal challenges and to draft collaborative project proposals. NSF program officers will use these proposals to develop future research programs and develop policies to better support this type of interdisciplinary research.

Judge, OSU Postdoctoral Association Professional Development Awards. *April 2022.*

Judge, CFAES Poster Competition, The Ohio State University. *April 2022.*

Committee Member, IBBR – Entomology Joint Faculty Search. *November 2019 – March 2020.*
** Indefinitely suspended before in-person interviews were conducted due to Covid-19*

President, **Entomology Student Organization.** *June 2019 – June 2020.*
Served as a liaison and advocate between graduate students and faculty in the University of Maryland Entomology Department, attended faculty meetings, organized student invited seminar speaker visits, and contributed to new graduate student recruitment

IBBR Booth Representative, *November 2018, November 2019*
Helped staff the IBBR booth at the annual Entomological Society of America Conference in 2018 and 2019. Shared information about IBBR mission and facilities with booth visitors.

Peer Reviewer: Environmental Entomology (April 2023, November 2022, December 2022), Scientific Reports (March 2022, May 2022), Crop Protection (May 2019), Pest Management Science (March 2018)

Treasurer, **Entomology Student Organization.** *June 2018 – June 2019.*
Managed 2018 – 2019 budgets and fundraising for the entomology student organization. Contributed to department event planning and new graduate student recruitment.

Student Volunteer at Annual ESA Meeting, *November 2014, November 2017*
Volunteered at annual Entomological Society of America meetings. Helped meeting attendees upload presentations, stocked materials at the registration booth, answered general questions.

Certifications

Certified Pesticide Applicator, State of Maryland. 2016-2021.
Category X (Public Agency; Research and Demonstration).

Teaching

Teaching Assistant, University of Maryland, Integrated Pest Management (ENTM 601).
January – May 2019
Developed and led laboratory exercises on pesticide bioassays. Guest lectured on insect vectored diseases. Graded course assignments and coordinated field trip transportation.

Teaching Assistant, University of Maryland, Human Biological Diversity (BSCI 189i).
August – December 2018
Led weekly lab section that included laboratory exercises, lectures, and discussions about course material. Graded term papers and exams.

Guest Lecture, University of Maryland, Principals of Organic Pest Management Seminar.
September 2018.
Provided background information about the biology and management of striped cucumber beetle. Led a discussion on organic management tactics.

Guest Lecture, University of Maryland, Integrated Pest Management Seminar.
March 2017.
Provided an overview on the biology and management of striped cucumber beetle.

Teaching Assistant, Pennsylvania State University, The Insect Connection (ENT 202).
August – December 2015.
Provided assistance and clarification to students on course materials, graded assignments.

Select Outreach

Bug-Mobile Volunteer at Farm Science Review. *September 2023.* Worked with the Ohio State University Entomology Department to exhibit live insects at Farm Science Review, an event that attracts an estimated 100,000 attendees annually.

"Soybean Pest Scouting". *August 2023.*
I developed and led an ~40 minute activity for high school students that focused on scouting for insect pests and insect pest damage in soybeans. This activity was part of a larger high school field trip to the Waterman Farm research facility at the Ohio State University in which groups of ~30 students rotated between three different outdoor activities.

"**Biological Control of Soybean Aphids".** *March 2023.*
I developed and presented a ~40 minute activity for a high school field trip to Ohio State University. Students learned about the biology of the soybean aphid and participated in an interactive activity to view interactions between the soybean aphid and green lacewing larvae.

Grow Next-Gen Industry Leader. *April 2022 – Present.*
I am currently working with Grow Next-Gen, a non-profit organization that develops and brings agricultural education tools into the classroom, to develop in-person and on-line learning materials about the soybean aphid. Outputs include:

- Online e-learning module about insect life cycles (https://elearning.grownextgen.org/insect-life-cycles/#/) that targets 8th grade science learning standards
- An in-class experiment where students compare soybean aphid population growth rates on different soybean varieties. As part of this, teachers can reach out to me to arrange shipments of aphids and soybean seeds to their classroom.
- An in-class activity where students use starburst candies to simulate selective breeding for aphid resistance traits in soybeans

- Exhibition on host plant resistance and soybean aphids for the 2022 Ohio Farm Science Review, an annual agricultural exposition event that attracts over 100,000 visitors

Bug-Mobile Volunteer at COSI Big-Science Celebration. *May 2022.* Worked with the Ohio State University Entomology Department to exhibit live insects at COSI's annual STEM festival, an event that attracts an estimated 45,000 attendees annually.

"Fruit flies, *Drosophila spp.*: More than just an uninvited Thanksgiving Guest!". *November 2020.* Contributed to weekly "Bug of the Week" article. Developed video and provided images, contributed to writing and idea conceptualization. http://bugoftheweek.com/?offset=1606744800081

"Hitting the Weak Spot: Biologically Based Pest Management of the Brown Marmorated Stink Bug". *October 2018.*
Wrote blog post about a weekly Department of Entomology Seminar at University of Maryland.
https://entomology.umd.edu/news/hitting-the-weak-spot-biologically-based-pest-management-of-the-brown-marmorated-stink-bug

"Monitoring Bt crops: Pest Management Does Not End When GM Seeds are Planted."
May 2017.
Co-authored blog post about a weekly Department of Entomology Seminar at University of Maryland.
https://entomology.umd.edu/news/monitoring-bt-crops-pest-management-does-not-end-when-gm-seeds-are-planted

Exploration-U. State College High School, State College, PA. *November 2014 and March 2015.*
Displayed insects, described general insect biology, fielded questions from the public at a STEM expo.

The Great Insect Fair. Penn State University, State College, PA. *September 2013 and 2014.*
Displayed live insects and fielded general questions from the public at the the Great Insect Fair, an annual event hosted by Penn State Entomology that attracts thousands of visitors.