MEGAN E. MEUTI

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Positions

2023 – present Associate Professor, Department of Entomology, The Ohio

State University, Columbus, OH

2016-2023 Assistant Professor, Department of Entomology, The Ohio State

University, Columbus, OH

2015-2016 Visiting Professor, Biology Department, Kenyon College. Gambier, OH

Education

2014 Ph.D. Department of Entomology, The Ohio State University, Columbus OH

Dissertation "Circadian Clocks and Photoperiodic Diapause in the Northern House Mosquito, *Culex pipiens*: Search for the Missing Link"

Advisor: Dr. David L. Denlinger

2008 B.S. Entomology, The Ohio State University, Columbus OH

2008 B.S. Microbiology, The Ohio State University, Columbus OH

Graduated *summa cum laude* with Research Distinction in Entomology

<u>Peer-reviewed Manuscripts (* = undergraduate student author; Y = graduate student author)</u></u>

- 1. Marzec, S., Siperstein, A., Zhou, A., Holzapfel, C.M., Bradshaw, W.E., **Meuti, M.E.** and Armbruster, P.A., 2023. MicroRNA Expression Prior to Biting in a Vector Mosquito Anticipates Physiological Processes Related to Energy Utilization, Reproduction and Immunity. *Insects*, *14*(8), p.700.
- 2. Dhungana, P., Wei, X., **Meuti, M**. and Sim, C., 2023. Identification of CYCLE targets that contribute diverse features of circadian rhythms in the mosquito Culex pipiens. *Comparative Biochemistry and Physiology Part D: Genomics and Proteomics*, 48, p.101140.
- 3. Scott, S.B., Sivakoff, F.S., **Meuti, M.E**. and Gardiner, M.M., 2023. Metals could challenge pollinator conservation in legacy cities. *Journal of Insect Conservation*, pp.1-15.
- Fyie, L.R. ^γ, Tronetti, H.R.*, Gardiner, M.M. and Meuti, M.E., 2023. Potential for urban warming to postpone overwintering dormancy of temperate mosquitoes. *Journal of Thermal Biology*, 115, p.103594

- 5. <u>Siperstein, A. Υ</u>, Pomeroy, L.W., <u>Robare, S.*, Sarko, L.*, Dehus, H.*, Lowmiller, T.*, Fyie, L. Υ</u> and **Meuti, M.E.**, 2023. Characterizing seasonal changes in the reproductive activity of Culex mosquitoes throughout the fall, winter, and spring in Ohio. *Parasites & Vectors*, *16*(1), pp.1-13.
- 6. **Meuti M.E.**, <u>Siperstein, A.^Y</u>, and <u>Wolkoff, M.^Y</u>, 2023. Points to consider when establishing and rearing Culex mosquitoes in the laboratory. Cold Spring Harb Protocol. doi:10.1011/pdb.top107823
- 7. **Meuti M.E.**, <u>Siperstein, A.Y</u>, and <u>Wolkoff, M.Y</u>, 2023. Establishing a Culex colony from field-collected eggs. Cold Spring Harb Protocol. doi:10.1011/pdb.prot108079
- 8. **Meuti M.E.**, <u>Siperstein, A.^Y</u>, and <u>Wolkoff, M.^Y</u>, 2023. Rearing and maintaining a Culex colony in the laboratory. Cold Spring Harb Protocol. doi:10.1011/pdb.prot108080
- 9. Wolkoff, M. Y., Fyie, L. Y. and **Meuti, M.E.,** 2023. Light Pollution Disrupts Seasonal Differences in the Daily Activity and Metabolic Profiles of the Northern House Mosquito, *Culex pipiens*. *Insects*, *14*(1), p.64.
- 10. <u>Siperstein, A.Υ</u>, Marzec, S., Fritz, M.L., Holzapfel, C.M., Bradshaw, W.E., Armbruster, P.A. and **Meuti, M.E.**, 2022. Conserved molecular pathways underlying biting in two divergent mosquito genera. *Evolutionary Applications*, *15*(5), pp.878-890.
- 11. <u>Peffers, C. γ</u> and **Meuti, M.E.** 2022. Characterizing the relative abundance of circadian transcription factors in diapausing and nondiapausing Northern house mosquitoes. *Journal of Insect Physiology*, p.104404.
- 12. King, K., **Meuti, M.E.** and Johnson, N.F. 2021. Identification and expression of odorant binding proteins in the egg-parasitoid Trissolcus basalis (Wollaston)(Hymenoptera, Scelionidae, Telenominae). *Journal of Hymenoptera Research*, 87, p.251.
- 13. <u>Fyie, L.R.</u> Gardiner, M.M. and **Meuti, M.E.** 2021. Artificial light at night alters the seasonal responses of biting mosquitoes. *Journal of Insect Physiology*, *129*, p.104194.
- 14. Teets, N.M. and **Meuti, M.E.** 2021. Hello Darkness, My Old Friend: A Tutorial of Nanda-Hamner Protocols. *Journal of Biological Rhythms*, *36*(3), pp.221-225.
- 15. <u>Peffers, C.S.</u>^Y, Pomeroy, L.W. and **Meuti, M.E.** 2021. Critical Photoperiod and Its Potential to Predict Mosquito Distributions and Control Medically Important Pests. *Journal of Medical Entomology*.

Scientific Publications cont. (* = undergraduate student author; ^y = graduate student author)

- 16. <u>Huck, D.T</u>*., Klein, M.S. and **Meuti, M.E.** 2021. Determining the effects of nutrition on the reproductive physiology of male mosquitoes. *Journal of Insect Physiology*, *129*, p.104191.
- 17. **Meuti, M.E.** and Harrell, R., 2020. Preparing and Injecting Embryos of Culex Mosquitoes to Generate Null Mutations using CRISPR/Cas9. *JoVE (Journal of Visualized Experiments)*, (163), p.e61651.
- 18. <u>Chang, V.*</u> and **Meuti, M.E**. 2020. Circadian transcription factors differentially regulate features of the adult overwintering diapause in the Northern house mosquito, *Culex pipiens*. *Insect Biochemistry and Molecular Biology*, 121: 103365.
- 19. Ragland, G.J., Armbruster, P.A. and **Meuti, M.E.**, 2019. Evolutionary and functional genetics of insect diapause: a call for greater integration. *Current opinion in insect science*, *36*, pp.74-81.
- 20. **Meuti, M.E.** and Short, S.M. 2019. Physiological and environmental factors affecting the composition of the ejaculate in mosquitoes and other insects. *Insects*. 10:74.
- 21. **Meuti, M.E.**, <u>Bautista-Jimenez, R*</u>. and Reynolds, J.A. 2018. Evidence that microRNAs are part of the molecular toolkit regulating adult reproductive diapause in the mosquito, *Culex pipiens. PloS one*, 13: e0203015.
- 22. Fisher, S.W and **M.E. Meuti.** 2018. Contributions of Entomology to Natural Theology in the late 17th to early 19th Centuries. *American Entomologist*. 4:242-250
- 23. <u>Short, C.A.*</u>, **M.E. Meuti**, Q. Zhang and D.L. Denlinger. 2016. Entrainment of eclosion and preliminary ontogeny of circadian clock gene expression in the flesh fly, *Sarcophaga crassipalpis*. *Journal of Insect Physiology*, 93:28-35.
- 24. **Meuti, M.E.,** <u>M. Stone</u>*, T. Ikeno and D.L. Denlinger. 2015. Functional circadian clock genes are essential for the overwintering diapause of the Northern house mosquito, *Culex pipiens. Journal of Experimental Biology*, 218:412-422.
- 25. **Meuti, M. E.**, <u>C. S. Short</u>* and D.L. Denlinger. 2015. Mom matters: the diapause characteristics of *Culex pipiens Cx. quinquefasciatus* hybrid mosquitoes. *Journal of Medical Entomology*, 52: 131-137.
- 26. The International *Glossina* Genome Initiative. 2014. Genome sequence of the tsetse fly (*Glossina morsitans*): vector of African trypanosomiasis. *Science*, 344:380-366.
- 27. **Meuti, M.E.** and D.L. Denlinger. 2013. Evolutionary Links Between Circadian Clocks and Photoperiodic Diapause in Insects. *Integrative and Comparative Biology*. 53: 131-143.

Scientific Publications cont. (* = undergraduate student author; ^y = graduate student author)

- 28. Lopez-Martinez, G.C., **M. E. Meuti**, and D. L. Denlinger. 2012. Rehydration Driven RNAi: A Novel Approach for Effectively Delivering dsRNA to Mosquito Larvae. *Journal of Medical Entomology*. 49:215-218.
- 29. <u>Meuti, M. E.</u>*, S. C. Jones and P. S. Curtis. 2010. ¹⁵N Discrimination and the Sensitivity of Nitrogen Fixation to Changes in Dietary Nitrogen in *Reticulitermes flavipes* (Isoptera: Rhinotermitidae). *Environmental Entomology*. 39:1810-1815.

Teaching publications

Fisher, S., **M.E. Meuti** and W. Klooster. 2017. "Pests, plagues, poisons and pollinators: Insects in human affairs." iBook.

Extension publications and recorded presentations

- Siperstein, A. and M.E. Meuti. "Northern house mosquitoes." Fact Sheet. 2 September 2021. https://ohioline.osu.edu/factsheet/ent-89
- M.E. Meuti and R. Etting. "How to control mosquitoes in and around Ohio homes." Fact Sheet. 26 August 2021. https://ohioline.osu.edu/factsheet/ent-88
- Shrock, K. and M.E. Meuti. "Asian tiger mosquito." Fact Sheet. 25 August 2021. https://ohioline.osu.edu/factsheet/ent-87
- M.E. Meuti. "Can we trick mosquitoes so they stop biting us?" OSU Minute Professor Talk. May 2019. https://www.youtube.com/watch?v=Uc4KIBm3Yv0&t=11s
- M.E. Meuti. "Mosquito seasonal biology and control." Infectious Diseases Institute Discovery Talks. https://www.youtube.com/watch?v=y6OXL0nZ UU

Funded Extramural Research Grants

- 2023 United States Department of Agriculture, Agricultural Food Research Initiative.

 "Aligning Investments in Greening and Mosquito Management to
 Support Bee and Human Health in Cities." PI: M.G. Gardiner; Co-PIs: M.E.
 Meuti and J.P. Strange. \$749,991 for 4 years. In progress.
- 2022 Engaged Scholarship Consortium. "Engaging with Bexley City Resident to Support Public and Environmental Health." PI: M.E. Meuti; Co-PI: M.G. Gardiner. \$5,000 for 1 year. *In progress.*
- National Science Foundation, Biological Directorate, Integrated and Organismal Systems, Physiological Mechanisms and Biomechanics. "Connecting the Acircadian clock to seasonal responses in mosquitoes." \$694,467 for 3 years; \$528,140 to Meuti Lab. PI: M.E. Meuti. Co-PI's: C. Sim and M. Klein. *In progress.*

Funded Extramural Research Grants (cont.)

2018 National Institutes of Health, NIAID, Vector Biology Study Panel. R21 "Evolution of non-biting in mosquito disease vectors." \$275,000 for 2 years (\$93,130 to Meuti Lab). PI: P. Armbruster. Co-PI's: M.E. Meuti and C. Holzapfel. Funded.

Funded Intramural Grants

- 2021 College of Food, Agriculture and Environmental Sciences Internal Grant
 Program, OSU. "Determining the relative contributions of mosquito
 biting behavior and seasonal responses in West Nile virus transmission."
 M.E. Meuti (PI), and L. Pomeroy (co-PI). \$50,000 for 2 years. *In progress*.
- 2018 Infectious Disease Institute Interdisciplinary Seeds Grant, OSU. "Manipulating the circadian clock to block seasonal responses in mosquitoes." M.E. Meuti (PI), C. Sim, and D. Denlinger (co-PI's). \$24,985 for 1 year. Funded.
- Ohio Agricultural Research Development Center, SEEDS grant, "Seasonal differences in mosquito reproduction: Identifying novel male accessory proteins as targets for control." M.E. Meuti (PI). \$47,175 over 2 years, Funded.

Invited Seminars and Talks

First author is the presenting author; *indicates plenary/key note talk

- 2023 **Meuti, M.E.** "Uncovering the molecular and ecological regulation of seasonal responses in mosquitoes." Presented virtually in the International Annual Seasonality Symposium. 1 December.
- 2023 **Meuti, M.E.,** "Assessing how various mosquito management practices affect pollinators and mosquitoes." Presented at the Ohio Mosquito and Vector Control Association Meeting. Westerville, Ohio. 31 October.
- 2023 **Meuti, M.E**. "Understanding the environmental drivers of seasonal responses in misquotes for more sustainable management." Presented in Ohio State University's the Environmental Sciences Graduate Program Seminar Series. Columbus, Ohio. 6 October.
- 2023 **Meuti, M.E.** "Uncovering the molecular regulation and ecological consequences of seasonal responses in mosquitoes." Presented virtually in Purdue University's Entomology Department Seminar. 14 September.

Meuti, M.E.*, Dehus, H., Naraynan, D., and Gardiner, M.M. "Reimagining mosquito control to better support pollinators in urban ecosystems." Presented at the 2023 North Central Branch Meeting of the Entomological Society of America. Symposium: Reshaping urban and agriculatural insect management to promote sustainable systems. Oklahoma City, Oklahoma. 11 April.

*Note: Mary Gardiner presented the talk that I prepared.

- Meuti, M.E.*, Siperstein, A., Marzec, S., Bradshaw, W.E., Holzapfel, C. and Armbruster, P.A. "Uncovering conserved transcriptional differences between biting and non-biting mosquitoes." Presented at the 2022 joint meeting of the Entomological Society of America and the Entomological Society of Canada. Recent Advances in Mosquito Physiology and Behavior Symposium. Vancouver, British Columbia, Canada. 16 November.
- 2022 **Meuti, M.E.** "Uncovering the molecular regulation and ecological consequences of mosquito seasonal responses." Presented virtually at the 2022 NE1943 Multi-State USDA Hatch Project meeting. 20 October.
- 2022 **Meuti, M.E.** "Evaluating the health and environmental impacts of Mosquito Management." Presented virtually at the 2022 Engaged Scholarship Consortium. 22 September.
- 2022 Meuti, M.E. "Uncovering the connection between the circadian clock and hormonal regulators of insect dormancy." Presented in person at the 2020 International Congress of Entomology, Helsinki Finland. 19 July. *Delayed because of the COVID19 pandemic
- 2022 **Meuti, M.E.** "Uncovering the molecular and ecological regulation of seasonal responses in mosquitoes." Presented virtually at the University of Memphis Biology Department Seminar Series. 17 February.
- 2022 **Meuti, M.E.** "How do mosquitoes correctly interpret environmental signals into complex seasonal responses?" Presented virtually at the University of California, Davis Entomology department Seminar Series. 19 January.
- Meuti, M.E. "Winter is coming: How mosquitoes integrate environmental signals and physiological mechanisms to predict the advent of Ohio's most inhospitable season." Presented at the Kenyon College Biology Department Common Hour. Gambier, Ohio. 2 December.
- 2021 **Meuti, M.E.** "Winter is coming: How mosquitoes predict and survive the Midwest's most inhospitable season." Presented at the University of Illinois Urbana Champagne Entomology Department Seminar Series. 8 November.

- 2021 Fyie, L.R, Gardiner, M.G. and **Meuti, M.E**. "The effects of urban pollutants on mosquito overwintering and disease risk" Presented in the "Dormancy and Changing Environments: Characterizing Responses to Temperature and Other Stressors" symposium at the National Meeting of the Entomological Society of America Conference; Denver, Colorado. 3 November. 2021 Meuti, M.E., Urso J. and Esquivel, C. "Using transcriptomics to uncover seasonal responses in male mosquitoes." Presented in the "A Functional Genomics Approach to Insect Overwintering and Cold Tolerance" at the National Entomological Society of America Conference; Denver, Colorado. 2 November. 2021 **Meuti, M.E.** "The molecular and ecological regulation of insect diapause." Presented at Baylor University, Biology Department Seminar Series. 8 October. 2021 Meuti, M.E. "Uncovering the molecular and ecological regulation of seasonal responses in mosquitoes." Vector Biology Virtual Seminar Series. Hosted by Monika Gulia-Nuss at University of Nevada, Reno. 15 January. 2021 Meuti, M.E. "Characterizing the molecular regulation of mosquito diapause and its relevant applications." Presented virtually at The University of Florida, Entomology Department Seminar Series. Gainesville, FL. 4 September.
- 2021 **Meuti, M.E.** "The molecular regulation and ecological applications of seasonal responses in mosquitoes." Presented virtually at the Tyson Research Center Summer Seminar Series. St. Louis, MO. 7 July.
- Meuti, M.E. "How a better understanding of seasonal ecology of mosquitoes may reduce West Nile virus transmission." Presented at the Ecology, Epidemiology and Public Health Seminar Series of the Infectious Diseases Institute, The Ohio State University. Columbus, OH, United States. 20 February.
- 2020 **Meuti, M.E.** "Uncovering the underpinnings of seasonal responses in mosquitoes." Presented at Virginia Tech, Entomology Department Seminar Series. Blacksburg, VA. 23 January.
- 2019 **Meuti, M.E.** "Manipulating the circadian clock to block seasonal responses in mosquitoes." Presented at the Infectious Diseases Institute Annual Conference, The Ohio State University. Columbus, OH, United States. 12 September.
- 2019 **Meuti, M.E.** "The circadian clock is necessary for seasonal timekeeping in mosquitoes." Presented at the Eastern central Branch Meeting of the Entomological Society of America, Virginia Tech, Blacksburg, VA. 12 March.

- **Meuti, M.E.** "Characterizing molecular basis of seasonal responses in mosquitoes." Presented at Western University, Biology Department Seminar Series. London, Ontario, Canada. 1 Feb.
- **Meuti, M.E.** Implementing authentic research experiences in a graduate insect physiology laboratory course: The highs and lows of a first year teaching. Symposium on Teaching Insect Physiology, Entomological Society of America Conference. Vancouver, BC Canada. 11 November.
- **Meuti, M.E.*** "Plenary Address: Characterizing Molecular Differences that lead to Seasonal Changes in Mosquito Reproductive Physiology." Presented at the Insect Biotech Conference. Niagara on the Lake, Ontario, Canada. 12 June.
- **Meuti, M.E.** "Seasonal Changes in Male Mosquito Accessory Gland Transcripts." Presented at the OARDC Mosquito Conference, Wooster, OH. 14 April.
- **Meuti, M.E.** "The Role of Biological Clocks in Daily and Seasonal Timekeeping in Insects." Presented at the Metaphors of Time Conference, The Ohio State University. 12 April.
- **Meuti, M.E.** "Uncovering the Molecular Regulators of Seasonal Responses in Mosquitoes." Presented at the University of Kentucky, Entomology Department Seminar Series. Lexington, KY, 22 March.
- **Meuti, M.E.** "The circadian clock's control of overwintering dormancy and seasonal differences in mosquito reproductive physiology." Presented at the International Congress of Comparative Endocrinology. Lake Louise, Alberta, CA. 6 June.
- **Meuti, M.E.** "The molecular regulation of mosquito diapause." Presented at the Ohio Physiological Society. Columbus, OH, 20 November.
- **Meuti, M.E.** "The Molecular Regulation of Insect Seasonal Physiology: Connecting The Circadian Clock to Mosquito Diapause." Presented at The Ohio State University of Department of Entomology Seminar Series. Columbus, OH, 1 March.
 - **Meuti, M.E.*** "The molecular regulation of insect seasonal physiology." Presented at Calvin College, Department of Biology Seminar Series. Grand Rapids, MI, 19 February.
 - **Meuti, M.E.*** "The molecular regulation of insect seasonal physiology." University of Scranton, Department of Biology Seminar Series. Scranton, PA, 16 January.

- **Meuti, M.E.*** "The molecular regulation of insect seasonal physiology." Presented at Messiah College, Department of Biology Seminar Series. Mechanicsburg, PA, 7 January.
- **Meuti, M.E.*** "The connection between the insect seasonal and photoperiodic clocks." Presented at Kenyon College, Biology Seminar Series. Gambier, OH, 30 January.
- **Meuti, M.E.*** "Searching for the connection between the insect circadian and seasonal clock." Presented at Goshen College Science Seminar Series. Goshen, IN, 10 April.
- **Meuti, M.E.*** and D.L. Denlinger. "The role of clock genes in the overwintering diapause of the Northern House Mosquito, *Culex pipiens*." Invited speaker, Society of Integrative and Comparative Biology. 3-8 January, San Francisco, CA.

Contributed Talks and Posters

- **Meuti, M.E.*** "The effects of nutrition on mosquito reproduction and seasonal responses." Presented virtually at the North Central Branch Meeting of the Entomological Society of America Conference. 27 May.
- **Meuti, M.E.*** "Determining how mosquitoes measure daily and seasonal time." Presented at the virtual meeting of the Entomological Society of America Conference.
- Meuti, M.E.* "Can understanding and manipulating the seasonal biology of the West Nile virus vector, *Culex pipiens*, lead to novel control mechanisms?" Presented at the annual meeting of the Entomological Society of America. St. Louis, Missouri, United States.
- Meuti, M.E.* "Male mosquitoes respond to photoperiod by altering the expression of accessory gland proteins and leading to seasonal differences in female reproductive physiology." National Meeting of the Entomological Society of America. Vancouver, British Columbia, Canada. 11 November.
- **Meuti, M.E.*** and R. Bautista-Jimenez. "Do males matter? How males might contribute to seasonal differences in *Culex pipiens* reproductive physiology." National Meeting of the Entomological Society of America. 7 November 2017. Denver, CO.
- **Meuti, M.E.**,* A. Kobelkova and D.L. Denlinger. "The role of the circadian clock in the overwintering diapause of the Northern House Mosquito." International Congress of Entomology. 24-30 September, Orlando, FL. (Poster)

Contributed Talks and Posters (continued)

- 2012 **Meuti, M.E.*,** T. Ikeno, M. Stone, A. Kobelkova and D. L. Denlinger. "Clock genes and mosquito diapause." International Symposium on the Ecological Physiology of Ectotherms and Plants. 24-38 August, London, Canada. (Poster)
- 2012 **Meuti, M.E.*** and D. L. Denlinger. "The role of clock genes in programming the overwintering diapause of the Northern house mosquito, *Cx. pipiens*. Ohio Valley Entomological Society. 29 October, Indianapolis, IN. (Oral presentation)
- 2011 **Meuti, M.E.,*** T. Ikeno, and D.L. Denlinger. "The role of clock genes in the overwintering diapause of the Northern House Mosquito, *Culex pipiens*." Society of Vector Ecology. 25-29 September, Flagstaff, AZ. (Oral presentation)
- Meuti, M.E.*, T. Ikeno, and D. L. Denlinger. "The role of clock genes in the overwintering diapause of the Northern House Mosquito, *Culex pipiens*." International Symposium on the Ecological Physiology of Ectotherms and Plants. 16-20 July, Rennes, France. (Oral presentation)
- Meuti, M.E.*, A. Korbelkova, and D. L. Denlinger. "Clock gene sequence and expression in the overwintering diapause of the mosquito *Culex pipiens*."

 Entomological Society of America National Conference, 13-16 December, Indianapolis, IN. (Oral presentation)
- 2007 **Meuti, M.E.***, S. C. Jones and P. C. Curtis. "Effects of dietary nitrogen on symbiotic nitrogen fixation in the eastern subterranean termite, *Reticulitermes flavipes*." Entomological Society of America National Conference, 9-12 December, San Diego, California. (Oral presentation)
- 2006 **Meuti, M.E.***, S. C. Jones and P. C. Curtis. "Effects of dietary nitrogen on symbiotic nitrogen fixation in the eastern subterranean termite, *Reticulitermes flavipes*." Denman Undergraduate Research Forum, 29 March, Columbus, OH. (Poster)
- 2005 **Meuti, M.E*.** and S.C. Jones. "Species distribution and life zone association of Peurto Rican termites." Denman Undergraduate Research Forum, 3 April, Columbus, OH Poster).

Graduate Student Presentations (first author is the presenting author)

Fyie, L.R., Fiorta, M., Gardiner, M.M. and **Meuti, M.E.** "Does light pollution interfere with seasonal responses in mosquitoes?" Presented at the annual meeting of the Entomological Society of America. National Harbor, Maryland. 6 November. *2nd place in the student competition

- Wolkoff, M.E., and **Meuti, M.E**. "The cycle gene is essential for both circadian rhythmicity and seasonal responses in *Culex pipiens*. Presented at the annual meeting of the Entomological Society of America. National Harbor, Maryland. 6 November.
- Dehus, H., Siperstein, A.D., Pomeroy, L.W., and **Meuti, M.E**. "Characterizing the abundance and reproductive activity of *Anopheles* mosquitoes during the fall, winter and spring in central Ohio." An invited talk at the Ohio Mosquito and Vector Control Association. Westerville, Ohio. 30 October.
- Siperstein, A., and **Meuti, M.E**. "Characterizing seasonal changes in mosquito diapause status and host use." Invited talk: Symposium: *Cross-roads of Diapause and Metabolism*. Presented at the joint meeting of the Entomological Society of America and the Canadian Entomological Society. Vancouver, British Columbia, Canada. 14 November.
- Hickmann, F., Poelstra, J.W., Michel, A., **Meuti, M.E.**, and Correa, A. "Gene expression profiling of diapausing *Euchistus* stink bugs." Presented at the joint meeting of the Entomological Society of America and the Canadian Entomological Society. Vancouver, British Columbia, Canada. 14 November. *1st place in the student competition*
- Fyie, L.R., Gardiner, M.G. and **Meuti, M.E**. "Uncovering how artificial light at night affects the circadian clock and diapause in the Northern house mosquito." Presented at the joint meeting of the Entomological Society of America and the Canadian Entomological Society. Vancouver, British Columbia, Canada. 14 November.
- Wolkoff, M., Fyie, L.R., and **Meuti, M.E**. "Circadian rhythm and metabolic profiles of diapausing and non-diapausing mosquitoes exposed to light pollution." Presented at the joint meeting of the Entomological Society of America and the Canadian Entomological Society. Vancouver, British Columbia, Canada. 14 November.
- Siperstein, A., **Meuti, M.E.** "Characterizing the seasonality of biting in mosquitoes during the off-season." Invited talk. Presented at the Ohio Mosquito and Vector Control Association. Columbus, Ohio. 24 October.
- Siperstein, A., and Meuti, M.E. "Characterizing seasonal changes in mosquito abundance." Invited talk: Symposium: *The Ecological and Molecular Regulators of Diapause*. Presented at the annual meeting of the North Central Branch of the Entomological Society of America. Minneapolis, Minnesota, United States. 22 March.
- Fyie, L.R.*, Gardiner, M.G., and **Meuti, M.E**. "The effects of urban pollutants on mosquito dormancy and disease risk." Invited talk: Symposium: *Dormancy and Changing Environments: Characterizing Responses to Temperature and Other Stressors* at the annual meeting of the Entomological Society of America. Denver, Colorado. 3 November.

Graduate Student Presentations continued (first author is the presenting author)

- Fyie, L.R.* M. Gardiner, and **M.E. Meuti.** "The urban environment impacts seasonal responses in mosquitoes." Presented at the Insect Biotech Conference.
- Fyie, L.,* M. Gardiner and **M.E. Meuti**. "Does the urban heat island effect alter mosquito seasonal responses?" Presented at the virtual meeting of the Entomological Society of America Conference.
- 2020 Peffers, C., and **Meuti, M.E**. "Characterizing the role of CYCLE and PDP1 in the circadian clock of the Northern house Mosquito, *Culex pipiens*. Presented at the virtual meeting of the Entomological Society of America Conference.
- Fyie, L., Gardiner, M., and **Meuti, M.E.** "Artificial light at night affects seasonal responses in the Northern house mosquito." OARDC Annual Research Forum. Columbus, Ohio, United States. *Placed 2nd in Master's Category*.
- Peffers, C. and **Meuti, M.E**. "Determining the Critical Photoperiod of different populations of the Northern house mosquito." Presented at the joint meeting of the North Central and Southwestern Branch of the Entomological Society of America. Oklahoma City, Oklahoma, United States. **Placed 3**RD in **Plant-Insect Interactions Category.**
- Fyie, L., Gardiner, M., and **Meuti, M.E**. "Artificial light at night affects seasonal responses in the Northern house mosquito." Presented at the joint meeting of the North Central and Southwestern Branch of the Entomological Society of America. Oklahoma City, Oklahoma, United States. *Placed 2nd in Plant-Insect Interactions Category*.
- Fyie, L.,* Gardiner, M., and **Meuti, M.E**. "Impacts of Artificial Light at Night (ALAN) on seasonal responses in *Culex pipiens*." Presented at the annual meeting of the Entomological Society of America. St. Louis, Missouri.
- Fyie, L.,* Gardiner, M., and **Meuti, M.E**. "Artificial light at night affects seasonal responses in the Northern house mosquito." Presented at the annual meeting of the Ohio Valley Entomological Association. Lexington, Kentucky, United States. (2019). *Placed 1st in Master's Category*.

<u>Undergraduate Student Presentations (first author is the presenter)</u>

Fiorta, M., Fyie, L.R., Gardiner, M.M and **Meuti, M.E.** "Presented at the College of Food, Agriculture and Environmental Sciences Forum. Columbus, Ohio. 27 March." Presented at the Entomological Society of America Conference. 6 November.

*First place in Undergraduate Physiology, Biochemistry & Toxicology Section

Undergraduate Student Presentations (first author is the presenter)

Robare, S., Odei, J. and Meuti, M.E. "Evaluating Geospatial, Human Behavioral, and Social Drivers of Mosquito Abundance and West Nile Virus Disease Risk." Presented at the College of Food, Agriculture and Environmental Sciences Forum. Columbus, Ohio. 27 March.

*First place in the Entomology category

- Fiorta, M., Fyie, L.R., and Meuti, M.E. "Understanding how light pollution affects mosquito blood-feeding and molecular biology." Presented at the College of Food, Agriculture and Environmental Sciences Forum. Columbus, Ohio. 27 March.
 - *3rd place in the Animal Sciences Category
- Robare, S., Odei, J. and Meuti, M.E. "Evaluating Geospatial, Human Behavioral, and Social Drivers of Mosquito Abundance and West Nile Virus Disease Risk." Presented at the Denman Undergraduate Research Forum. Columbus, Ohio. 9 March.
- Fiorta, M., Fyie, L.R., and Meuti, M.E. "Understanding how light pollution affects mosquito blood-feeding and molecular biology." Presented at the Denman Undergraduate Research Forum. Columbus, Ohio. 9 March.
 - *3rd place in the Animal Sciences Category
- Bianco, O., Klein, M. and **Meuti, M.E**. "Measuring How Royal Jelly Affects Seasonal Responses in Mosquitoes." Presented at the Denman Undergraduate Research Forum. 10 March.
- Arkorful-Bondzie, C. and **Meuti, M.E.** "Does the photoperiod of *Culex* male mosquitoes affect female longevity?" Presented at the Denman Undergraduate Research Forum. 10 March.
- Bianco, O. and **Meuti, M.E**. "The role of Major Royal Jelly Protein 1 in mosquito dormancy." Presented at the Insect Biotech Conference. **1**st **place for short talk.**
- Arkorful-Bondzie, C. and **Meuti, M.E**. "Does the photoperiod of male *Culex* mosquitoes affect female longevity?" Presented at College of Food, Agriculture and Environmental Sciences Virtual Research Forum. *3rd place for Undergraduate Entomology Poster.*
- Urso, J. and **Meuti, M.E.** "Effects of Male Accessory Gland Gene Expression on Female Reproductive Physiology in *Culex pipiens*." Presented at College of Food, Agriculture and Environmental Sciences Virtual Research Forum. **2**nd **place for Undergraduate Entomology Poster.**
- 2021 Bianco, O. and **Meuti, M.E.** "The role of Major Royal Jelly Protein 1 in mosquito dormancy." Presented at College of Food, Agriculture and Environmental Sciences Virtual Research Forum. 1st place for Undergraduate Entomology Poster.

Undergraduate Student Presentations (continued; first author is the presenter)

- 2021 Urso, J. and **Meuti, M.E.** "Effects of Male Accessory Gland Gene Expression on Female Reproductive Physiology in *Culex pipiens*." Presented at the Denman Undergraduate Research Forum. 3rd place in Animals and Insect Science Category.
- Huck, D. Klein, M., and **Meuti, M.E**. "The role of nutrition in male mosquito reproductive physiology." Virtual meeting of the Entomological Society of America Conference.
- Huck, D. and **Meuti, M.E.** "The effects of nutrition on the reproductive physiology of male mosquitoes." Denman Undergraduate Research Forum. Columbus, OH. 3 March. 3rd place in Animal and Environmental Sciences Category.
- Simmons, D. and **Meuti, M.E.** "CRISPR/Cas9: The creation of mutant mosquitoes." Presented at the Summer Research Opportunities Program Poster Symposium. Columbus, Ohio, United States. 29 July.
- 2019 Chang, V. and **Meuti, M.E.** "The role of circadian clock genes in the overwintering diapause of the Northern House mosquito." CFAES Undergraduate Research Forum. Columbus, OH. 6 March.
- 2019 Chang, V. and **Meuti, M.E**. "The role of circadian clock genes in the overwintering diapause of the Northern House mosquito." Denman Undergraduate Research Forum. Columbus, OH 20 Feb. 1st place in the Evolution, Genetics and Biochemistry of Insects Category.
- Allison, C. and **Meuti, M.E.** "Males of the Northern house mosquito respond to day length and alter the expression of accessory gland proteins." Denman Undergraduate Research Forum. Columbus, OH. 20 February.
- 2018 Chang, V. and **Meuti, M.E.** "The role of the circadian clock genes *vrille* and *pdp1* in the overwintering diapause of the Northern house mosquito." The Ohio Valley Entomological Association. Indianapolis, IN. 19 Oct. **1**st place in the **Undergraduate Research category.**
- Allison, C. and **Meuti, M.E.** "Photoperiodism in males of *Culex pipiens* and its influence on female fecundity." Ohio Valley Entomological Association. Indianapolis, IN. 19 October.
- Colin, V. and **Meuti, M.E.** "Antioxidant expression in the spermathecae of the Northern house mosquito, *Cx. pipiens.*" Denman Undergraduate Research Forum. 3 April. **2**nd place in Environment, Conservation and Monitoring Category.

Undergraduate Student Presentations (continued; first author is the presenter)

- 2018 Chang, V. and **Meuti, M.E.** "Measuring the Gene Expression of *Par Domain Protein1* in the Northern House Mosquito, *Culex pipiens*." CFAES Undergraduate Poster Forum. 1 March.
- 2018 Colin, V. and **Meuti, M.E.** "Antioxidant expression in the spermathecae of the Northern house mosquito, *Cx. pipiens*." CFAES Undergraduate Research Poster Forum. 1 March.
- 2016 Short, C.A., **Meuti, M.E.** and Denlinger, D.L. "Circadian clock gene expression and the ontogeny of the eclosion rhythm in *Sarcophaga bullata*." International Congress of Entomology. Orlando, FL. 12 Oct.

Fellowships and Scholarships

The Ohio State University, Susan D. Huntington Dean's Distinguished
University Graduate Fellowship, \$67,200
Goldwater society, Barry M. Goldwater Scholarship, Honorable Mention
The Ohio State University, Ralph H. Davidson Entomology Scholarship, \$500
Ohio Board of Education, Robert C. Byrd Scholarship, \$9,000

Awards and Honors

2022	College of Food, Agriculture and Environmental Sciences, Strategic Alignment for Research Success (STARS) program
2020	The Ohio State University, Excellence in Undergraduate Research Mentoring Award
2018	Entomological Society of America, Early Career Professional Teaching Award, \$1,000.
2015	Ohio Agricultural Research Development Center, William E. Krauss Director's Award for Excellence in Graduate Research, \$1,000
2014	Ohio State Department of Entomology, Susan W. Fisher Teaching Award, \$250
2013	Ohio State Department of Entomology, David Horn Service Award, \$250
2013	Department of Entomology, Delong Travel Award, \$500
2011	International Society of the Ecological Physiology of Ectotherms and Plants, First Place Oral Presentation, \$500
2011	Ohio State Council of Graduate Students, Ray Travel Award, \$750
2008	Entomological Society of America, President's Prize for Oral Presentation Section SVPHS3, \$100
2008	Ohio Valley Entomological Association, 1 st place Undergraduate Research Competition, \$350
2007	Ohio Valley Entomological Association, 2 nd place Undergraduate Research competition, \$250

Teaching Experience

- 2023 present Associate professor of Entomology, The Ohio State University, Columbus, OH. I have continued to hone graduate-level lecture and lab courses on Insect Physiology and Molecular Biology. I have also developed an asynchronous, online lab course to introduce non-science majors how to collect, analyze and interpret data to critically test hypotheses on whether the human capacity for hope and belief is hard-wired into our genetics and neurobiology.
- 2016-2023 Assistant professor of Entomology, The Ohio State University, Columbus, OH. I used backward design to develop 6 courses including, graduate-level Insect Physiology lecture and laboratory courses. I also developed and taught General Entomology, and two online courses for non-science majors: The Biology of Hope and Belief and Pests, Plagues, Pollinators and Poisons: Insects in Human Affairs.
- 2015-2016 *Visiting professor of Biology*, Kenyon College, Gambier, OH. I taught upper-level lecture and laboratory courses in insect biology, developed and taught a new course on insect biology for non-science majors, and taught introductory biology laboratory sections.
- 2015 Instructional Aide, The Ohio State University, Columbus, OH. I assisted 3 faculty members in the entomology department with various teaching responsibilities including assessing student learning in online vs. traditional lecture-based courses, measuring increases in student scientific literacy, and curating our insect teaching collection.
- Visiting professor of Biology, Kenyon College, Gambier, OH. I designed and taught lecture and laboratory courses on insect biology which engaged students in active learning and inquiry-based laboratory exercises. Topics in the course included insect growth, development and physiology; insect diversity and taxonomy; insect ecosystem services; and insect-human interactions.
- 2012, 2010 Teaching Assistant, Honors Tropical Field Ecology, The Ohio State University, (2010) Monteverde, Palo Verde and La Selva, Costa Rica. (2012) Gamboa, Panama. Demonstrated how to collect and identify insects, and assisted students as they designed, executed and analyzed the results of original short-term field research projects.
- 2009 Teaching Assistant, General Entomology (Ent 101), The Ohio State University.

 Assisted in designing course curriculum for non-science majors, led labs & exam review sessions, gave 3 guest lectures & graded lab exercises.
- 2007-2008 Undergraduate Teaching Assistant, Introduction to Biology, The Ohio State University. Led a laboratory/recitation course for biology majors and non-science majors.

Graduate Student Mentorship

Major adviser:

2023 – present Chloe Chiu. Determining how male mosquitoes influence seasonal

differences in mosquito reproductive biology. Department of

Entomology, The Ohio State University.

Chole is projected to graduate with her MS in August 2025.

2023 – present Hannah Dehus. Determining when and how to manage

mosquitoes. Environmental Sciences Graduate Program, The Ohio

State University.

Hannah is projected to graduate with her MS in May 2025.

2020 – present Matthew Wolkoff. Uncovering the molecular regulation of

diapause in Culex pipiens. Department of Entomology, The Ohio

State University.

Matthew is projected to graduate with his PhD in August 2024.

2019 –2023 Alden Siperstein. Characterizing seasonal changes in mosquito

abundance and uncovering the genetic regulation of biting in *Culex* mosquitoes. Department of Entomology, The Ohio State

University.

Alden is projected to graduate with his PhD in August 2023.

2018 – present **Lydia Fyie.** The impacts of urbanization on mosquito

overwintering responses. Department of Entomology, The Ohio

State University.

Lydia is co-advised by Dr. Mary Gardiner and is projected to

graduate with her PhD in May 2024.

2018 – 2021 Caitlin Peffers. Characterizing the photoperiodic response and

circadian clock in the Northern house mosquito, Culex pipiens.

Past Advisory Committee Member:

King, Kendall. PhD student in Entomology. Graduated May 2023.

Kelly, Brendon. Master's student in Entomology. Graduated December 2022.

Shannon, Brandon. Master's student in Environmental Studies Graduate Program. Graduated December 2022

Li, Yuan. Master's student in Entomology. Graduated in December 2022.

Lahey, Zach. PhD in Evolution, Ecology and Organismal Biology. Graduated May 2021.

Parker, Denisha. PhD in Entomology. Graduated May 2020.

Current Advisory Committee Member:

Centori, Dante. PhD student in Entomology.

Park, Yenna. Master's student in Environmental Studies Graduate Program.

Bai, Ningzhu. Master's student in Environmental Sciences Graduate Program.

Magistrado, Dominique. Master's student in Entomology.

Shannon, Brandon. PhD student in Environmental Studies Graduate Program.

Joseph, Nicki. Master's student in Entomology.

Schneider, Matthias. PhD student in Evolution, Ecology and Organismal Biology.

Mentoring Experience

2010-2014 Facilitator, Teaching Assistant Orientation, The Ohio State University. Taught incoming graduate students how to prepare for the first day of class and become an effective teaching assistant.

2016-present Undergraduate Research Mentor, The Ohio State University, Columbus, OH.
Advised and supervised 20 undergraduate students from diverse backgrounds
(8 female; 4 ethnic minorities; 2 LGBTQ). Taught students molecular techniques including gene sequencing, RACE, quantitative-Real Time PCR, RNAi and CRISPR/Cas9. Assisted four students prepare research statements for a summer research fellowship/grants.

2010-2012 *High School Research Mentor*, The Ohio State University, Columbus, OH. Supervised & mentored a high school student sequence the circadian gene *Clock*.

<u>Selected Guest Lectures (36 total)</u>

2023 "Insect sensory systems" and "Insect hormones and endogenous rhythms" In: Insect Behavior taught by Dr. Larry Phelan, Entomology, The Ohio State University.

2019 "Effective Teaching" In: Presentation Skills for Scientists taught by Dr. Kelley Tilmon, Entomology, The Ohio State University

2019 "Hormones, development and seasonal responses" In: Insect & Human Biology & Diversity taught by Dr. Carol Anelli, Entomology, The Ohio State University.

2018 "Insect Environmental Physiology" In: Insect Ecology and Evolutionary Processes taught by Drs. Elizabeth Long and Kelley Tilmon, Entomology, The Ohio State University.

2022 – present	CFAES Strategic Alignment for Research Success (STARS) program, The Ohio State University.
2020 – 2021	Culturally responsive mentoring: Participating in monthly workshops to learn how to effectively mentor students from diverse backgrounds.
2018	Becoming an effective research mentor: Attended a day long training session on how to advise students by clearly communicating expectations, providing specific and constructive feedback, and helping them to prepare for their next steps.
2018	Insect Genetic Technologies Research Coordination Network Short Course on Insect Genetic Technologies: Learned how to design and execute experiments using genetically modified insects including transposon mutagenesis and CRISPR/Cas9 genome editing.
2016	Course design institute: Implemented principled of backward design to begin planning an a new graduate-level course on Insect Physiology and Molecular Biology.
2012-2013	Preparing future faculty program: Interviewed my faculty mentor, Dr. Geoff Smith at Denison College, and discovered what teaching in the biology department at a small liberal arts college entails. I observed lectures and labs and attended department and general faculty meetings.
2010-present	Attended over 20 workshops sponsored by Ohio State's University Center for the Advancement of Teaching/Drake Institute of Teaching & Learning to learn new techniques and activities to enhance student learning including fair and effective grading, developing effective presentation skills, and using writing to enhance critical thinking.

University Service Activities

2019-present Reviewer. Infectious Diseases Institute Interdisciplinary SEED Grant Panel.

2019-present	Committee Member. College of Food, Agriculture and Environmental Sciences	,
	Honors Committee.	

2022-2023 Chair. Entomology Department Awards Commi	ttee.
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2019-2021 *Chair*, Seminar Committee. Entomology Department.

2018-2019 *Chair*, Social Committee. Entomology Department.

2018-present *Reviewer.* College of Food, Agriculture and Environmental Sciences Faculty and Student Awards Committee.

University Service Activities (continued)

2017, 2018 Faculty Facilitator. UCAT New Graduate TA Orientation.

2016-present Committee member, Graduate Studies Committee. Entomology Department.

2016-2019 Faculty representative, Entomology Graduate Student Association. Advised grad

students on event planning, departmental procedures; relayed concerns to the

faculty.

2016-2020 Committee member, Curriculum Committee. Entomology Department.

Professional Service

2023 – present Member of International Atomic Energy Association's Coordinated Research Project to improve the Sterile Insect Technique for Aedes mosquitoes. Attend

biannual meetings to present current research, plan research projects with

others in the CRP, and prepare reports.

2023 – present Member of Multistate Hatch Project NE-1943 to improve surveillance and

control of vector-borne diseases. Attend annual meetings and assist in

preparing reports and planning future projects.

2018 – present Ohio Regional Tick Symposium Co-Organizer. Assisted organizing the

biannual Ohio Regional Tick Symposium. Our first meeting was in October

2021, and our second was in October 2023.

2018 – present Judge/Moderator for Student Competition. Serve as a judge/moderator for

the student 10 minute talks and/or posters at the annual meeting of the

Entomological Society of America conference.

2012-2014 *Vice President,* Ohio State Entomology Graduate Student Association.

Co-led our graduate student group; served as a liaison between graduate students & departmental leadership; compiled & created a draft of graduate student concerns to share with our department's

external review committee.

2010 President, Ohio Valley Entomological Association. Organized

annual meeting; secured funding from sponsors; recruited judges from other institutions and industry to assess student

competition awards.

Reviewer of Manuscripts

Physiological Entomology; Journal of Insect Physiology; European Journal of Entomology; Evolution; Comparative Biochemistry and Physiology Part B; PLoS One; Environmental Entomology; Chronobiology; Journal of Biological Clocks; PNAS; Insects; Journal of Medical Entomology; Journal of Experimental Biology; Scientific

Reviewer of Grant Proposals

National Science Foundation (Biology Directorate, Integrative Organismal Systems, Physiology and Biomechanics), National Institutes of Health (Neuroscience of Interoception and Chemosensation Study Section), American Mosquito Control, National Science and Engineering Research Council of Canada, Integrated Services for Infectious Disease Outbreak Research.

Public Outreach

2021 - 2023

Program Instructor, PAST Foundation "Bugging Out" camp. Developed and led programming for two week-long camps for middle and elementary-school aged children from Columbus inner-city schools. Activities included collecting, pinning and identifying insects; calculating species richness and evenness; and discussing job opportunities and strategies for success in STEM.

2008-present

Bugologist, I have given over 100 public presentations with live insects and other arthropods throughout central Ohio, including in pre-schools, Boy and Girl Scout troops, elementary, middle schools and high schools; college dormitories. A major focus of these presentations includes what I do as an entomologist and how I became a scientist to encourage other young people to pursue careers in STEM.

2007-2019

Volunteer, Ohio State University's Museum of Biological Diversity Annual Open House.

2010-2013

Program Director, PAST Foundation Entomology Summer Bridge Camp. Designed experiments, planned activities and gave lectures to educate inner-city students and Lakota Native Americans about insect diversity, ecology, and physiology. The camps were held in Columbus, OH (2010), Carter Cave State Park, KY (2011) Kelley's Island, OH (2012, 2013) and Rapid City, SD (2013).

Professional Affiliations

Entomological Society of America; American Association for the Advancement of Science; Society of Integrative and Comparative Biology; Sigma Xi Scientific Research Society; Ohio Valley Entomological Association; Phi Beta Kappa National Honors Society, Infectious Diseases Institute (OSU)

References

David Denlinger, PhD

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Email: denlinger.1@osu.edu Phone: (614) 354-8138

Meg Daly, PhD

Associate Dean of Undergraduate Education; Professor of Evolution, Ecology and Organismal Biology 1315 Kinnear Rd. Room 1554 Museum of Biological Diversity Columbus, OH 43210

Email: <u>daly.66@osu.edu</u> Phone: 614-247-8412

Susan Fisher, PhD

Professor emeritus; collaborator in course development and SoTL research 2021 Coffey Rd Room 216 Kottman Hall Columbus, OH 43210

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