

DONNIE L. PETERSON

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Objective: Continue specializing on woodborer ecology and forest entomology with long term interest in researching invasion ecology, host plant resistance mechanisms, host plant selection cues, and interactions of associated forest pests.

Education: **Ph.D. ENVIRONMENTAL SCIENCES** August 2015- December 2019
Wright State University, Dayton, OH
Advisor: Don Cipollini
Cumulative grade point average: 3.97 (4.00=A)

M.S., ENTOMOLOGY December 2014
Purdue University, West Lafayette, IN
Advisor: Cliff Sadof
Cumulative grade point average: 3.73 (4.00=A)

B.S., FOREST ECOSYSTEM RESTORATION AND MANAGEMENT May 2012
University of Wisconsin-Stevens Point, Stevens Point, WI
Advisor: James Cook
Cumulative grade point average: 3.50 (4.00 =A)

Research Focus:

- Plant Ecology and Entomology
- Host plant selection of forest insects
- Invasion ecology
- Host plant resistance mechanisms
- Ecological fitting of insects to novel hosts

Research Experience: Rutgers University, New Brunswick, New Jersey December 2019-Present
Postdoctoral Associate. Generating and interpreting qPCR results for environmental DNA. Using eDNA to detect the presence of invasive insects within agricultural ecosystems forested systems as a novel method of insect pest biosurveillance. Conducting delimiting surveys around initial sites of infestation/establishment of spotted lanternfly and other forest insect pests.

Wright State University, Dayton, Ohio August 2015-December 2019
Ph. D. Graduate Research Assistant. Studied the ecological fitting of the Buprestid pest emerald ash borer (EAB) to two novel hosts: white fringetree (*Chionanthus virginicus*) and cultivated olive (*Olea europaea*). Investigated the impact of EAB on wild populations of white fringetree and ability of EAB develop and feed on two novel host plants. Compared the relative resistance and shared volatile chemistry of hosts of EAB to understand host selection cues among susceptible and resistance hosts.

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Purdue University, West Lafayette, Indiana June 2012- December 2014
Master's Graduate Research Assistant. Determined establishment of parasitoids released for biological control of emerald ash borer (*Agrilus planipennis*). Investigated host plant resistance of two North American ash trees (*Fraxinus* spp.) to *A. planipennis* and a parasitoid's ability to use *A. planipennis* as a host on two different ash tree hosts.

Applied Ecological Services, Appleton, Wisconsin June- August 2011
Restoration Field Crew Member. Removed or killed invasive species by mechanical or herbicide application. Implemented erosion control by straw mulching. Restored a damaged creek by erosion control and native plant/tree planting. Seeded cover crop and native species. Restored stream bank by stabilizing banks with matting and adding logs to stream for fish habitat. Planted wetland plants in water scraps/ponds.

Colorado State University, Fort McCoy, Wisconsin Summer 2009 and 2010
Threatened and Endangered Species Technician. Responsible for data collection and data input into Microsoft Excel. Restored and maintained goat prairie ecosystem by brush cutting and tree removal. Radio telemetry of Blandings/ wood turtles and bullsnakes. Invasive species removal and monitoring. Logged/Chain sawed to remove trees to develop better butterfly habitat for Karner Blue Butterfly. Plotted Lupine plant distribution across Fort McCoy.

Teaching Experience: Wright State University, Dayton, Ohio September 2018-Present
Graduate teaching assistant. Prepared laboratory each week for Plant Physiology and general biology courses including making solutions, gathering and buying supplies, and teaching/supervision of the students. Responsible for grading laboratory reports and leading class discussion after laboratory.

Wright State University, Dayton, Ohio April 2018, 2019
Guest lecturer. Lectured on interactions between organisms during a community ecology unit in a freshman level biology course.

Professional memberships:

Entomological Society of America, student member 2013-2020
 Student representative for Wright State University on Student Affairs Committee for North Central Branch (2018, 2019).
Ecological Society of American, member 2019
Graduate Student Assembly, Wright State University 2018-2019
 Grant reviewer of Professional Development Grant.
Society of Ecological Restoration, student member 2011-2014

Travel Awards and Funds:

ESA North Central Branch Student Travel Award 2019
 Environmental Sciences Ph.D. program Travel Fund 2016, 2017, 2018, 2019
 Department of Biological Sciences Travel Grant 2016, 2017, 2018, 2019
 College of Science and Mathematics Special Projects Fund (Travel) 2016, 2017

Research Publications:

- Peterson, D. L.**, and D. Cipollini. 2019. Larval performance of a major forest pest on novel hosts and the effect of stressors. *Environmental Entomology*: 1-7.
<https://doi.org/10.1093/ee/nvz160>
- Rigsby, C. M., C. Villari, **D. L. Peterson**, D. A. Herms, P. Bonello, and D. Cipollini. 2018. Girdling increases survival and growth of emerald ash borer larvae on Manchurian ash. *Agricultural and Forest Entomology*: DOI: 10.1111/afe.12292
- Cipollini, D., and **D. L. Peterson**. 2018. The potential for host switching via ecological fitting in the emerald ash borer-host plant system. *Oecologia*:1-13.
<https://doi.org/10.1007/s00442-018-4089-3>
- Peterson, D. L.**, and Don Cipollini. 2017. Distribution, predictors, and impacts of emerald ash borer (*Agrilus planipennis*) (Coleoptera: Buprestidae) infestation of white fringetree (*Chionanthus virginicus*). *Environmental Entomology*: nvw148
- Cipollini, D., C. M. Rigsby, and **D. L. Peterson**. 2017. Feeding and development of emerald ash borer (Coleoptera: Buprestidae) on cultivated olive, *Olea europaea*. *Journal of Economic Entomology*: tox139
- Sadof, C. S., G. P Hughes, A. R. Witte, **D. L. Peterson**, and M. D. Ginzel. 2017. Tools for staging and managing emerald ash borer in the urban forest. *Arboriculture and Urban Forestry* 43: 15-26
- Peterson, D. L.**, J. J. Duan, J. S. Yaninek, M. D. Ginzel, and C. S. Sadof. 2015. Growth of larval *Agrilus planipennis* (Coleoptera: Buprestidae) and fitness of *Tetrastichus planipennisi* (Hymenoptera: Eulophidae) in blue ash (*Fraxinus quadrangulata*) and green ash (*F. pennsylvanica*). *Environmental Entomology* 44: 1512-1521.

Research in prep/review:

- Peterson, D. L.**, K. Boroczky, J. Tumlinson, and D. Cipollini. 2019. Ecological fitting: chemical profiles of plant hosts provide insights on selection cues and preferences for a major Buprestid pest. *Phytochemistry*: in review.
- Peterson, D. L.**, A. Anulewicz, B. Slager, and D. Cipollini. 2019. Adult performance of emerald ash borer (*Agrilus planipennis*) on white fringetree and cultivated olive. In prep.
- Peterson, D. L.**, and D. Cipollini. 2019. Attack dynamics, impact, and predictors of emerald ash borer on white fringetree and ash populations. In prep.

Invited Research Presentations:

- Peterson, D. L.**, K. Boroczky, J. Tumlinson, and D. Cipollini. 2018. Volatile profiles of five hosts of emerald ash borer and their potential role in host plant selection. Sensory Ecology Symposium, North Central Branch meeting for Entomological Society of America, 18-21 March 2018. Madison, Wisconsin.
- Peterson D. L.** and D. Cipollini. 2017. Emerald ash borer (*Agrilus planipennis*) longevity, feeding, and oviposition on novel hosts. A Day in the Woods Program at the Vinton Furnace. 14th of July 2017, Vinton Furnace Experimental Forest, Dundas, OH.
- Peterson, D. L.**, S. Yaninek, J. J. Duan, and C. Sadof. 2014. Suitability of blue ash (*Fraxinus quadrangulata*) and green ash (*F. pennsylvanica*) to emerald ash borer (*Agrilus planipennis*) and its larval parasitoid *Tetrastichus planipennisi*. Emerald ash borer symposium. Entomological Society of America, 16-19 November 2014. Portland, Oregon. (Poster)

Research Presentations:

- Peterson, D. L.**, and D. Cipollini. 2019. Performance of emerald ash borer (*Agrilus planipennis*) in stressed non-ash hosts. 2019 Annual Meeting of Ecological Society of America, 11-16 August 2019. Louisville, Kentucky.
- Peterson, D. L.**, and D. Cipollini. 2019. Performance of emerald ash borer (*Agrilus planipennis*) in stressed non-ash hosts. 2019 North Central Branch Annual Meeting for Entomological Society of America, 17-20 March 2019. Cincinnati, Ohio.
- Peterson, D. L.**, K. Boroczky, J. Tumlinson, and D. Cipollini. 2019. Ecological fitting of emerald ash borer to novel hosts: host plant volatiles and their importance for host attraction. 2019 Plant-Herbivore Interaction (Gordon Research Conference), 24-28 February 2019. Ventura, CA. (Poster)
- Peterson, D. L.**, K. Boroczky, J. Tumlinson, and D. Cipollini. 2018. Ecological fitting of emerald ash borer to novel hosts: Host plant chemistry, adult preference and volatile attraction. In Crossing borders: Entomology in a changing world. 2018 Entomological Society of America Annual Meeting, November 11-14 2018, Vancouver, BC, Canada.
- Peterson, D. L.**, K. Boroczky, J. Tumlinson, and D. Cipollini. 2018. Ecological fitting of emerald ash borer to novel hosts: Host plant chemistry and volatile attraction. In College of Science and Mathematics: Festival of Research. October 26 2018, Dayton, Ohio.
- Peterson D. L.** and D. Cipollini. 2017. Longevity, consumption, and oviposition of emerald ash borer on novel hosts. In Entomology 2017: Ignite. Inspire. Innovate. Entomology Society of American, November 5-8 2017, Denver, CO. <https://esa.confex.com/esa/2017/meetingapp.cgi/Paper/121006> (Accessed October 3 2017).
- Cipollini D., C. M. Rigsby, and **D. L. Peterson**. 2017. Feeding and development of emerald ash borer on cultivated olive, *Olea europaea*. Ecological Society of America Annual Meeting, Portland, OR, August 2017.
- Cipollini D., C. M. Rigsby, and **D. L. Peterson**. 2017. Feeding and development of emerald ash borer on cultivated olive, *Olea europaea*. 2017 Plant-Herbivore Interaction (Gordon Research Conference), 12-17 February 2017. Ventura, CA (Poster)
- Peterson, D. L.**, and D. Cipollini. 2017. Distribution, impacts, and adult longevity of emerald ash borer (*Agrilus planipennis*) on white fringetree (*Chionanthus virginicus*). 2017 Plant-Herbivore Interaction (Gordon Research Conference), 12-17 February 2017. Ventura, CA. (Poster)
- Peterson, D. L.**, and D. Cipollini. 2016. Distribution, impacts, and adult longevity of emerald ash borer (*Agrilus planipennis*) on white fringetree (*Chionanthus virginicus*). 2016 Emerald Ash Borer Research and Technology Development Meeting, 19-20 October 2016. Wooster, OH.
- Peterson, D. L.**, and D. Cipollini. 2016. Distribution, predictors, and impacts of emerald ash borer (*Agrilus planipennis*) infestation of white fringetree (*Chionanthus virginicus*). International Congress of Entomology, 25-30 September 2016. Orlando Florida.
- Peterson, D. L.**, and D. Cipollini. 2016. Determination of the distribution and factors predicting emerald ash borer (*Agrilus planipennis*) infestation in white fringetree (*Chionanthus virginicus*). North Central Branch meeting for Entomological Society of America, 5-9 June 2016. Cleveland, Ohio.
- Peterson, D. L.**, S. Yaninek, J. J. Duan, and C. Sadof. 2014. Emerald ash borer (*Agrilus planipennis*) larval development on blue ash (*Fraxinus quadrangulata*) and green

ash (*F. pennsylvanica*): Field and laboratory experiments. Entomological Society of America, 16-19 November 2014. Portland, Oregon.

Peterson, D. L., S. Yaninek, and C. Sadof. 2014. Suitability of blue ash (*Fraxinus quadrangulata*) and green ash (*F. pennsylvanica*) to emerald ash borer (*Agrilus planipennis*) and its larval parasitoid *Tetrastichus planipennisi*. 60th Michigan Entomological Society's Annual Meeting, June 13-15 2014. Saginaw Valley State University, Saginaw, Michigan.

Peterson, D. L., S. Yaninek, and C. Sadof. 2014. Suitability of green ash (*Fraxinus pennsylvanica*) and blue ash (*F. quadrangulata*) to emerald ash borer (*Agrilus planipennis*) and their potential as a refuge for biological control agents. Midwest-Great Lakes SER Sixth Annual Chapter Meeting March 28- 30 2014. Minneapolis, Minnesota.

Peterson, D. L., S. Yaninek, and C. Sadof. 2013. Suitability of blue ash (*Fraxinus quadrangulata*) and green ash (*F. pennsylvanica*) to emerald ash borer (*Agrilus planipennis*) and the larval parasitoid *Tetrastichus planipennisi*. Entomological Society of America, November 10-14 2013. Austin, Texas. (Poster)

Zuger, M., **D. L. Peterson**, and J. Cook. 2012. Seedbank analysis of a restored wetland in central Wisconsin. Society of Ecological Restoration Midwest Conference, Ann Arbor, Michigan 2012. (Poster)

Professional service:

Manuscript peer review for the following journals:

Biological Invasions

Journal of Economic Entomology

Ecological Seminar Coordinator (Ecoseminar) **2016-2018**

Planned time and location for weekly seminar series. Coordinated and invited graduate students and professors, from both Wright State University and local universities, to present research, findings, proposal defenses, or Master/PhD defenses.

Grant reviewer **2018**

Reviewed applications for the Professional Development Grant offered by the Graduate Student Assembly at Wright State University.

Section Moderator **2017-2018**

Moderated graduate student presentations at the Celebration of Research at Wright State University.

Student Adviser and Mentor **2016-2019**

Helps train undergraduate students and new graduate students. Demonstrated to them how to write scientifically, design and implement experiments, and manage, statistically test, and analyze data sets. Provide advice in maintaining a work, life balance and insights on how to budget salary in graduate school.

Community Outreach:

Innovation Weekend **2019**

Mentoring undergraduates on how to conceptualize realistic ideas to solve major world issues with 2019 concentrating on how to manage plastic overuse and pollution in our oceans.

Math & Science Night Volunteer **2018**

Taught elementary school students and parents about the diversity of insect fauna and career options for entomologists at Mills Lawn Elementary School, Yellow Springs Ohio.

Science communication via Twitter (@ForestEnto) **2018-Present**

Present my findings through Twitter to reach a larger, general science audience. Collaborate with other researchers by sharing their tweets, recent findings, and having discussions of current issues.

Skype a Scientist

2018-2019

Participating in program that links scientists with K-12 teachers. Teachers and scientists work together to plan a Skype session to discuss a topic relevant to the scientist's expertise. Students are given the opportunity to ask questions and learn about the discussed topic.