

Dylan A. Tussey

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Profile

A broadly trained entomologist with six years of experience in sterile insect technique. Passionate about developing novel and sustainable methods of pest and vector management in response to invasive species and climate change.

Education

Ph.D Entomology

2017-2022

Dissertation: Improving field performance of sterilized *Aedes aegypti* mosquitoes for use in sterile insect technique
University of Florida, Gainesville, FL

M.S. Entomology

2015-2017

Thesis: Sublethal effects of cold on emerald ash borer (Coleoptera: Buprestidae), focusing on nutrition levels and dispersal capabilities
University of Minnesota Twin Cities, St Paul, MN

B.S. Environmental Studies

2009-2013

Concentration: Ecology and Environmental Biology
University of North Carolina at Asheville, Asheville, NC

Related Experience

POSTDOCTORAL RESEARCHER

UNIVERSITY OF CALIFORNIA RIVERSIDE, PARLIER, CA

JUNE 2022- PRESENT

- Conducted radiation dose responses on navel orangeworm and codling moth
- Designed and conducted experiments to improve sterile moth competitiveness

RESEARCH ASSISTANT

UNIVERSITY OF FLORIDA, GAINESVILLE, FL

AUGUST 2017 - APRIL 2022

- Reared and maintained colonies of mosquitoes
- Designed and conducted experiments to improve sterile male performance
- Coordinated with state and federal agencies to implement pilot programs

RESEARCH ASSISTANT

UNIVERSITY OF MINNESOTA, ST. PAUL, MN

JANUARY 2015 - JULY 2017

- Collected infested trees in urban and forested areas, collaborated with U.S. Forest Service
- Designed and conducted experiments on nutritional analysis of emerald ash borer
- Used custom flight mill equipment and software to collect dispersal capacity data

RESEARCH TECHNICIAN

MOUNTAIN HORTICULTURAL CROPS RESEARCH AND EXTENSION CENTER, MILLS RIVER APRIL 2013- JANUARY 2015

- Monitored crops for insect damage and applied pesticides in test plots.
- Coordinated with various commercial growers for field trials of insecticides
- Created informational handouts on agricultural pests and insecticide application methods.

SUMMER SCHOLAR

NEW YORK STATE AGRICULTURAL EXPERIMENT STATION, GENEVA, NY

MAY-AUGUST 2012

- Tested the attractiveness of multiple synthetic sex pheromones for *Prionus laticollis* for IPM.
- Setup, maintained and monitored insect traps for orchard IPM control programs.
- Collected data for numerous studies and recorded data into databases.

Awards and Accomplishments

Entomological Society of America National Linnaean Games Champion team - 2019
Entomology & Nematology Student Organization Student Travel Grant- Fall 2019
University of Florida Graduate School Funding Award, University of Florida- 2017
Departmental Travel Grant, University of Minnesota- 2015 & 2016

Publications

- Tussey, D.A.**, Morreale, R., Carvalho, D.O., Stenhouse, S., Lloyd, A.M., Hoel, D.F., and D.A. Hahn. 2023. Developing methods for chilling, compacting, and sterilizing adult *Aedes aegypti* and comparing mating competitiveness between males sterilized as adults versus pupae for sterile male release. *Journal of Medical Entomology* (In review).
- Tussey, D.A.**, K.J. Linthicum, and D.A. Hahn. 2022. Does severe hypoxia during irradiation of *Aedes aegypti* pupae improve sterile male performance? *Parasites & Vectors*, 15, 446. <https://doi.org/10.1186/s13071-022-05577-0>
- Tussey, D.A.**, B. H. Aukema, A. M. Charvoz, and R. C. Venette. 2018. Effects of adult feeding and overwintering conditions on energy reserves and flight performance of emerald ash borer (Coleoptera: Buprestidae). *Environmental Entomology*, 47(3): 755–763.
- Parker, C., Bernaola, L., Lee, B.W., Elmquist, D., Cohen, A., Marshall, A., Hepler, J., Pekarcik, A., ... and **D.A. Tussey**. 2019. Entomology in the 21st Century: Tackling Insect Invasions, Promoting Advancements in Technology, and Using Effective Science Communication—2018 Student Debates, *Journal of Insect Science*, 19(4): <https://doi.org/10.1093/jisesa/iez069>
- Walgenbach, J.F., Bilbo, T.R., **Tussey, D.A.**, and E.C. Ogburn. 2020. Comparison of chemigation versus foliar insecticide use: management of lepidopteran larvae and stink bugs in North Carolina field tomatoes with environmental and farmworker benefits. *Pest Management Science*, 77(2): 758–765.
- Hasan, Ma., Hasan, Me., Rahman, S., Athanassiou, C.G., **Tussey, D.A.**, and D.A. Hahn. 2021. Induced dormancy in Indian meal moth *Plodia interpunctella* (Hübner) and its impact on the quality improvement for mass rearing in parasitoid *Habrobracon hebetor* (Say). *Bulletin of Entomological Research*, 112(6), 766–776.

Selected Presentations

- Dylan A. Tussey**, Charles Burks, and Houston Wilson. Impact of X-ray irradiation on survival, flight, and mating for navel orangeworm and codling moth. Orchard Pest and Disease Management Conference. Portland OR, January 11, 2023.
- Dylan A. Tussey**, Jean Liu, Sarah Meierotto, Charles Burks, and Houston Wilson. Performance of mass-reared navel orangeworm for sterile insect technique in California tree nuts. 2022 ESA, ESC, and ESBC Joint Annual Meeting. Vancouver, BC Canada. November 15, 2022.
- Dylan A. Tussey**, Kenneth J. Linthicum, and Daniel A. Hahn. Building better males: Improving sterile male performance in sterile insect technique programs for control of *Aedes aegypti*? 2022 ESA, ESC, and ESBC Joint Annual Meeting. Vancouver, BC Canada. November 13, 2022.
- Dylan A. Tussey**, Kenneth J. Linthicum, Robert L. Aldridge, and Daniel A. Hahn. Hypoxic conditions during irradiation improve sterile male performance in *Aedes aegypti*. Annual Meeting of the Entomological Society of America. St. Louis, MO, November 18, 2019.
- Dylan A. Tussey**, Kenneth J. Linthicum, Robert L. Aldridge, and Daniel A. Hahn. Do anoxia pre-treatments improve sterile male performance after irradiation in *Aedes aegypti*? 2018 ESA, ESC, and ESBC Joint Annual Meeting. Vancouver, BC Canada. November 12, 2018.
- Dylan A. Tussey**, Brian H. Aukema, and Robert C. Venette. Sublethal effects of cold on emerald ash borer (Coleoptera: Buprestidae): energy reserves and flight Capacity. XXV International Congress of Entomology. Orlando, FL, September 29, 2016.

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Selected Presentations (Continued)

Dylan A. Tussey, Brian H. Aukema, and Robert C. Venette. Effects of feeding on lipid content and dispersal capability of adult *Agrilus planipennis*. 64th Annual North Central Forest Pest Workshop. Keshena, WI, September 21-24, 2015.

Dylan A. Tussey and Arthur M. Agnello. Comparative attractiveness of a single-component isomer vs. the racemic blend of a mating pheromone in *Prionus* root-boring beetle traps. 2012 Summer Scholars Program Undergraduate Research Poster Session. Geneva, NY, July 31, 2012.

Teaching Experience

Teaching Assistant

University of Florida, Principles of Entomology Lab

Spring 2019, Fall 2019, Spring 2020

Guest Lecturer

"Medical and Veterinary Entomology"- University of Florida, Principles of Entomology Spring '20,'21,'22

Institutional and Departmental Service

Treasurer, Entomology & Nematology Student Organization at the University of Florida

2018-2019 Academic Year

- Managed organizations bank account
- Managed fundraising events and inventory
- Oversaw application and review process of annual travel grant

Vice President, University of Minnesota entomology graduate student association

2016-2017 Academic Year

- Assisted in organizing student meetings
- Managed graduate student organization website

Outreach and Volunteer Experience

Syngenta Pistachio Field Day: October 20, 2022.

Gave talks and answered questions for Pistachio growers about pest management in pistachios

Reedley College Field Day: October 20, 2022.

Gave an orchard tour and discussed pistachio and almond orchard management with students in an agricultural production course.

Florida State Fair- UF Entomology Department Booth: February, 2020

Ran educational booth with over 200 visitors of all ages.

Branford Public library, Branford, FL-Library Summer Camp: June 2019

Presented basic insect and spider facts using live specimens to 30 children ranging from 5-10. **Bug Camp, Gainesville FL- Mosquito Experiment: July 2018**

Lead a summer camp activity for children ages 12-16, teaching them the basic design of a scientific experiment. Students worked with mosquitoes to form a hypothesis, collect and analyze data, and discuss results.

Ocala Country Days, Ocala, FL- Entomology Booth: November 2017

Operated an educational booth on insect biology, ecology and careers in entomology.

Minnesota Shade Tree Short Course: March 2016

Moderated sessions presenting applied research on shade tree pest and disease management to state and private land managers

Minnesota State Fair- UMN Entomology Department Booth: August, 2015 & 2016

Annual event with educational games and display animals for children, as well as information on urban and agricultural pests for adults.

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Professional Society Memberships

Entomological Society of America (ESA)- 2015-Present

Florida Mosquito Control Association (FMCA)- 2018-Present

American Mosquito Control Association (AMCA)- 2020-Present

References

- Dr Houston Wilson, University of California Riverside, Professor of Entomology
(559)403-9783 houston.wilson@ucr.edu
- Dr Daniel A Hahn, University of Florida, Professor of Entomology
(352)665-0557 dahahn@ufl.edu
- Dr Robert C Venette, USDA- Forest Service, Research Biologist
(651)649-5028 rvenette@fs.fed.us
- Dr Brian H Aukema, University of Minnesota, Professor of Entomology
(612)624-1847 bhaukema@umn.edu
- Dr James F Walgenbach, North Carolina State University, Professor of Entomology
(828)684-3562 jim_walgenbach@ncsu.edu