

CV

Zachary DeVries, PhD

The Bill Gatton Foundation Assistant Professor
Assistant Professor of Urban Entomology
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EDUCATION

- 2017 **Doctor of Philosophy**, Entomology. North Carolina State University, Raleigh, NC
Dissertation: Biology, behavior, and management of urban pests
- 2013 **Master of Science**, Entomology. Auburn University, Auburn, AL
Thesis: Respiratory physiology of urban insects
- 2011 **Bachelor of Science**, Zoology. Auburn University, Auburn, AL
Graduated Summa Cum Laude
Minor in Statistics

PROFESSIONAL APPOINTMENTS/EXPERIENCE

- 2024-present **Bill Gatton Foundation Early Career Assistant Professor.** Dept. of Entomology, Martin-Gatton College of Agriculture, Food and Environment, University of Kentucky, Lexington, KY
- 2019-present **Assistant Professor.** Dept. of Entomology, University of Kentucky, Lexington, KY
- 2019 **Research Assistant Professor.** Department of Entomology and Plant Pathology, North Carolina State University, Raleigh, NC.
- 2018-2019 **Postdoctoral Research Scholar.** Department of Entomology and Plant Pathology, North Carolina State University, Raleigh, NC. Mentored by Dr. Coby Schal
- 2013-2017 **Graduate Research and Teaching Assistant.** Department of Entomology and Plant Pathology, North Carolina State University, Raleigh, NC. Advised by Dr. Coby Schal
- 2011-2013 **Graduate Research Assistant.** Department of Entomology and Plant Pathology, Auburn University, Auburn, AL. Advised by Dr. Arthur Appel

HONORS AND AWARDS

Honors and Awards

34. Bill Gatton Foundation Early Career Professorship; Martin Gatton College of Agriculture, Food and Environment, University of Kentucky (2024-2027).
This award provides support to outstanding early career faculty pursuing innovative research, extension, and/or instructional programs to address contemporary challenges related to agriculture, food, the environment, and/or society.
33. Crown Leadership Award; PCT Magazine (2024).
Since 1998, the Crown Leadership Awards have been presented annually to five individuals for their contributions to the growth and development of the pest control industry. To the best of my knowledge, I am the youngest person to ever receive this award.

32. Early Career Innovation Award; Entomological Society of America (2023).
Nationally competitive award given to 1 early career professional in the Entomological Society of America each year.
31. CAFE Bobby Pass Excellence in Grantsmanship Award; Martin-Gatton College of Agriculture, Food and Environment, University of Kentucky (2021).
The Bobby Pass Excellence in Grantsmanship Award is presented annually to the CAFE faculty member receiving the most significant external award, or combination of awards, during the previous 5 years. To my knowledge, I am one of only a handful of assistant professors to win this award, doing so in only my 2nd year at UK.
30. Wethington Award; College of Agriculture, Food and Environment, University of Kentucky (2020-2024).
29. John Henry Comstock Award (Southeastern Branch); Entomological Society of America (2018).
28. Friends of IPM Graduate Student Award (PhD); Southern Region IPM Center (2017).
27. International IPM Award of Excellence for Doctoral Students; The 9th International IPM Symposium (2017).
26. Vandenberg Travel Fellowship; The W.M. Keck Center for Behavioral Biology, North Carolina State University (\$450, 2017).
25. Outstanding Ph.D. Student Award; North Carolina Entomological Society (2016).
24. First Place Student Paper Competition (Oral Presentation); International Congress of Entomology (2016).
23. Lillian and Alex Feir Graduate Student Travel Award in Insect Physiology, Biochemistry, or Molecular Biology; Entomological Society of America (\$1,850, 2016).
22. First Place Ph.D. Oral Presentation; Southeastern Branch of the Entomological Society of America Annual Meeting (2016).
21. The National Conference on Urban Entomology Ph.D. Scholarship; National Conference on Urban Entomology (\$1,500, 2016).
20. Foundation for Toxicology and AgroMedicine Supplementary Scholarship; The Foundation for Toxicology and AgroMedicine (\$2,000, 2015).
19. John V. Osmun Memorial Scholarship; Pi Chi Omega (\$3,000, 2014).
18. Second Place President's Prize for Oral Presentation; Entomological Society of America National Meeting (2014).
17. Larry Larson Graduate Student Award for Leadership in Applied Entomology; Entomological Society of America (sponsored by Dow AgroSciences, 2014).

16. Kirby L. Hays Memorial Award; Southeastern Branch of the Entomological Society of America (2014).
15. Third Place Oral Presentation; North Carolina State University Entomology Graduate Student Symposium (2014).
14. Medical, Urban, and Veterinary Entomology Section Student Scholarship; Entomological Society of America (MUVE Section; \$500; 2014)
13. Master's Thesis Award; Auburn University (2013)
12. Outstanding Graduate Student (Master's) Award; Auburn University (2013)
11. Outstanding M.S. Graduate Student Award in Entomology; Department of Entomology and Plant Pathology, Auburn University (2013)
10. First Place M.S. Oral Presentation; Southeastern Branch of the Entomological Society of America Annual Meeting (2013)
9. Monsanto Student Travel Award; Entomological Society of America (\$1,830, 2013)
8. University Graduate Fellowship; North Carolina State University (\$4,000, 2013)
7. David R. Nimocks, Jr. Fellowship (for research in urban entomology); North Carolina State University (\$42,000, 2013)
6. Smalley Award (Best Overall Master's Student GPA); Department of Entomology and Plant Pathology, Auburn University (2012)
5. Dean's Medal; Department of Biological Sciences, Auburn University (2011)
4. Outstanding Junior Award; Department of Biological Sciences, Auburn University (2010)
3. Goldwater Scholarship Honorable Mention (2010)
2. Second Place Oral Presentation for the Competitive Undergraduate Research Fellowship Competition; The Auburn University 7th Annual Undergraduate Research Forum (2010)
1. Undergraduate Research Fellowship; Auburn University (\$5,800, 2009)

PROGRAM FUNDING

Funding Summary

Nationally Competitive.....	\$3,259,016
State and Internally Competitive.....	\$160,000
Industry.....	\$832,958
Total Funding to Date.....	\$4,251,974
Total Funding Awarded to DeVries Program.....	\$3,819,667

Grants: Awarded

9. **DeVries ZC**, Penn J. 2025-2027. A complete approach to cockroach management in affordable housing communities. U.S. Department of Housing and Urban Development (HUD) Lead and Healthy Homes Technical Studies (LHHTS) Grant Program. \$999,979. DeVries Portion: \$699,979. (PI, 17% effort, Nationally Competitive).
8. **DeVries ZC**, Grady B. 2024-2025. Cockroach connoisseurs: How contamination of insecticidal baits affects German cockroach behavior. The Pest Management Foundation. \$28,552. DeVries Portion: \$28,552. (PI, 1% effort, Nationally Competitive).
7. **DeVries ZC** 2024-2026. The Bill Gatton Foundation Early Career Assistant Professor. Martin-Gatton College of Agriculture, Food and Environment, University of Kentucky. \$150,000. DeVries portion: \$150,000. (PI, University Competitive).
6. **DeVries ZC**. 2023. Extension innovation funding. University of Kentucky. \$10,000. DeVries portion: \$10,000. (PI, 1% effort, University Competitive).
5. **DeVries ZC**. 2023. Behavioral responses of bed bug (*Cimex lectularius*) to *Beauveria bassiana* (Aprehend). Washington State Commission on Pesticide Registration. \$25,000. DeVries portion: \$25,000. (PI, 1% effort, Nationally Competitive).
4. **DeVries ZC**. 2022-2023. Evaluation of *Beauveria bassiana* (Aprehend) as an alternative to the organophosphate dichlorvos (Nuvan ProStrips) for bed bug (*Cimex lectularius*) control. Washington State Commission on Pesticide Registration. \$47,000. DeVries portion: \$47,000. (PI, 1% effort, Nationally Competitive).
3. **DeVries ZC**, Appel AG, Penn J. 2021-2024. Cockroach eradication through community engagement: Empowering residents to improve their health. U.S. Department of Housing and Urban Development (HUD) Lead and Healthy Homes Technical Studies (LHHTS) Grant Program. \$400,000. DeVries Portion: \$267,693. (PI, 3% effort, Nationally Competitive).
2. **DeVries ZC**. and Gaire S. 2021-2022. The perfect meal: Determining how age and humidity affect cockroach gel bait performance. The Pest Management Foundation. \$21,153. DeVries Portion: \$21,153. (PI, 1% effort, Nationally Competitive).
1. **DeVries ZC**. 2019-2024. Histamine in homes: Exposure risks and health effects. National Institutes of Health (NIH) Office of the Director Early Independence Award. \$1,737,332. DeVries portion: \$1,737,332. (PI, 50% effort, Nationally Competitive).

Industry Funding (all funding solely to DeVries)

Year	# Projects	Total Funding
2024*	19	\$213,200
2023	19	\$196,051
2022	13	\$144,120
2021	10	\$98,428
2020	13	\$181,159
TOTAL FUNDING	74	\$832,958

*as of 12/7/24

Industry partners: Bayer CropScience; Control Solutions, Inc.; Syngenta; FMC Corporation; BASF; Bedoukian Research, Inc.; Bed Bug Central; Envu; Nattaro Labs; Nisus; i2L

PUBLICATIONS

([†] indicates DeVries student, ^{††} indicates DeVries post-doc/research scientist, [§] indicates undergraduate student/graduate student/post-doc informally supervised by DeVries; [¶] indicates authors contributed equally to the work, * indicates corresponding author(s) (note, I encourage my trainees to serve as corresponding authors); senior author is by default last author unless otherwise indicated).

Peer Reviewed Publications

31. Gordon JM[†], Sierras AJ^{††}, Jackson D[†], Principato S[†], **DeVries ZC**. (in press). Laboratory and in-home evaluations of consumer- and professional-grade cockroach baits. *Journal of Economic Entomology*. <https://doi.org/10.1093/jee/toae291>
30. Principato S^{†*}, **DeVries ZC**. 2024. Effects of surface type and distance traveled on the efficacy of a *Beauveria bassiana* (Hypocreales:Cordycipitaceae)-based biopesticide (Aprehend) for bed bug (Hemiptera: Cimicidae) control. *Journal of Economic Entomology* 117(5):1786-1795. <https://doi.org/10.1093/jee/toae184>
29. Gordon JM^{†*}, Eva MJ, Gaire S^{††}, Appel AG, **DeVries ZC***. 2024. Common consumer residual insecticides lack efficacy against insecticide-susceptible and resistant populations of the German cockroach (Blattodea: Ectobiidae). *Journal of Economic Entomology* 117(5):2051-2059. <https://doi.org/10.1093/jee/toae158>
28. Gordon JM^{†*}, **DeVries ZC**. 2024. Identification of the pan-allergen tropomyosin from the common bed bug (*Cimex lectularius*). *Scientific Reports* 14:7281. <https://doi.org/10.1038/s41598-024-57877-3>
27. Gaire S^{††*}, Sierras AJ^{††}, Morgan H[†], **DeVries ZC***. 2024. Behavioral responses of German cockroaches to pyrethroids and pyrethroid-formulated insecticides. *Pest Management Science* 80(2):433-441. <https://doi.org/10.1002/ps.7774>

26. Principato S^{†*}, Romero A, Lee CY, Campbell K, Choe CH, Schal C, **DeVries ZC**. 2023. Histamine excretion in common indoor and hematophagous arthropods. *Journal of Medical Entomology* 60(6):1269-1277. <https://doi.org/10.1093/jme/tjad103>
25. Gordon JM^{†*}, Santangelo RG, González-Morales MA[§], Menechella M[§], Schal C, **DeVries ZC**. 2023. Spatial distribution of histamine in bed bug-infested homes. *Science of the Total Environment* 880:163180. <https://doi.org/10.1016/j.scitotenv.2023.163180>
24. Gaire S^{††*}, Principato S[†], Schal C, **DeVries ZC**. 2022. Histamine excretion by the common bed bug (Hemiptera: Cimicidae). *Journal of Medical Entomology* 59(6):1898-1904. <https://doi.org/10.1093/jme/tjac131>
23. González-Morales MA[§], **DeVries ZC**, Kakumanu ML, Schal C*. 2022. Multiple mechanisms confer fipronil resistance in the German Cockroach: Enhanced detoxification and Rdl mutation. *Journal of Economic Entomology* 59(5):1721-1731. <https://doi.org/10.1093/jme/tjac100>
22. Gaire S^{††*¶}, **DeVries ZC*¶, Mick R[§], Santangelo RG, Bottillo G, Camera E, Schal C. 2021. Human skin triglycerides prevent bed bug (*Cimex lectularius* L.) arrestment. *Scientific Reports* 11:22906. <https://doi.org/10.1038/s41598-021-01981-1>.**
21. González-Morales MA[§], **DeVries ZC**, Sierras AJ^{††}, Santangelo RG, Kakumanu ML, Schal C*. 2021. Resistance to fipronil in the common bed bug, *Cimex lectularius* (Hemiptera: Cimicidae). *Journal of Medical Entomology* 58(4):1798-1807. <https://doi.org/10.1093/jme/tjab040>.
20. Saveer AM*, **DeVries ZC**, Schal C*. 2021. Mating and starvation modulate feeding and host-seeking responses in female bed bugs, *Cimex lectularius*. *Scientific Reports* 11:1915. <https://doi.org/10.1038/s41598-021-81271-y>.
19. Schal C, **DeVries ZC**. 2021. Public health and veterinary importance of the German cockroach. IN Wang C, Rust M, and Lee CY (eds), *Biology and Management of the German Cockroach*.
18. Gaire S^{††*}, Schal C, Mick R[§], **DeVries ZC**. 2020. The role of antennae in heat detection and feeding behavior in the bed bug (*Cimex lectularius* L.). *Journal of Economic Entomology* 113(6):2858-2863. <https://doi.org/10.1093/jee/toaa250>
17. **DeVries ZC***, Santangelo RG, Booth W, Balvín O, Bartonička T, Schal C. 2020. Reproductive compatibility among populations and host-associated lineages of the common bed bug (*Cimex lectularius* L.). *Ecology and Evolution* 10:11090-11099. <https://doi.org/10.1002/ece3.6738>
16. Kakumanu ML*, **DeVries ZC**, Barbarin A, Santangelo RG, Schal C*. 2020. Bed bugs shape the indoor microbial community composition of infested homes. *Science of the Total Environment*. 743: 140704. <https://doi.org/10.1016/j.scitotenv.2020.140704>
15. **DeVries ZC**, Santangelo RG, Crissman J, Suazo A, Kakumanu ML, Schal C. 2019. Pervasive pyrethroid resistance among German cockroaches (*Dictyoptera: Blattellidae*) collected from homes where total release foggers (TRFs) failed. *Journal of Economic Entomology* 112(5):2295-2301. <https://doi.org/10.1093/jee/toz120>

14. **DeVries ZC**, R. Santangelo, J. Crissman, Mick R, and Schal C. 2019. Exposure risks and ineffectiveness of total release foggers (TRFs) used for cockroach control in residential settings. *BMC Public Health* 19:96. <https://doi.org/10.1186/s12889-018-6371-z>
13. **DeVries ZC**, Saveer AM, Mick R, Schal C. 2019. Bed bug (Hemiptera: Cimicidae) attraction to human odors: Validation of a two-choice olfactometer. *Journal of Medical Entomology* 56(2): 362-367. <https://doi.org/10.1093/jme/tiy202>
12. **DeVries ZC**, Santangelo RG, Barbarin AM, Schal C. 2018. Histamine as an emergent indoor contaminant: Accumulation and persistence in bed bug infested homes. *PLoS One* 13(2): e0192462. <https://doi.org/10.1371/journal.pone.0192462>
11. Campbell BE, Miller DM, **DeVries ZC**, Appel AG. 2017. Water loss and metabolic activity in bed bug eggs (*Cimex lectularius*). *Physiological Entomology* 42(4): 355-361. <https://doi.org/10.1111/phen.12204>
10. **DeVries ZC**, Mick RA, Balvín O, Schal C. 2017. Aggregation behavior and reproductive compatibility in the family Cimicidae. *Scientific Reports* 7:13163. <https://doi.org/10.1038/s41598-017-12735-3>
9. Balvín O, Bartonička T, Pilařová K, **DeVries ZC**, Schal C. 2017. Discrimination between lineage-specific shelters by bat- and human-associated bed bugs does not constitute a stable reproductive barrier. *Parasitology Research* 116(1): 237-242. <https://doi.org/10.1007/s00436-016-5284-y>
8. **DeVries ZC**, Mick RA, Schal C. 2016. Feel the heat: Activation, orientation, and feeding responses of bed bugs to targets at different temperatures. *Journal of Experimental Biology* 219(23): 3773-3780. <https://doi.org/10.1242/jeb.143487>
7. **DeVries ZC**, Kells SA, Appel AG. 2016. Estimating the critical thermal maximum (CT_{max}) in bed bugs, *Cimex lectularius*: Comparing thermolimit respirometry with traditional visual methods. *Comparative Biochemistry and Physiology Part A: Molecular & Integrative Physiology* 197: 52-57. <https://doi.org/10.1016/j.cbpa.2016.03.003>
6. **DeVries ZC**, Kells SA, Appel AG. 2015. Effects of starvation and molting on the metabolic rate of the bed bug (*Cimex lectularius* L.). *Physiological and Biochemical Zoology* 88(1): 53-65. <https://doi.org/10.1086/679499>
5. **DeVries ZC**, Reid WR, Kells SA, Appel AG. 2015. Effects of starvation on deltamethrin tolerance in bed bugs, *Cimex lectularius* L. (Hemiptera: Cimicidae). *Insects* 6: 102-111. <https://doi.org/10.3390/insects6010102>
4. **DeVries ZC**, Appel AG. 2014. Effects of temperature on nutrient self-selection in the common silverfish, *Lepisma saccharina* L. *Physiological Entomology* 39(3): 217-221. <https://doi.org/10.1111/phen.12064>

3. **DeVries ZC**, Kells SA, Appel AG. 2013. Standard metabolic rate of the bed bug, *Cimex lectularius*: Effects of temperature, mass, and life stage. *Journal of Insect Physiology* 59(11): 1133-1139. <https://doi.org/10.1016/j.jinsphys.2013.08.012>
2. **DeVries ZC**, Appel AG. 2013. Standard metabolic rates of *Lepisma saccharina* and *Thermobia domestica*: effects of temperature and mass. *Journal of Insect Physiology* 59(6): 638-645. <https://doi.org/10.1016/j.jinsphys.2013.04.002>
1. **DeVries ZC**, Henry RP. 2012. Effects of hypoxia on oxygen uptake and surfacing behavior in the giant aquatic salamander *Siren lacertina*. *Marine and Freshwater Behavior and Physiology* 45(2): 135-143. <https://doi.org/10.1080/10236244.2012.691244>

Publications in Revision, under Review, or in Manuscript (page number and figure count provided)

5. Kakumanu ML^{1*}, **DeVries ZC**¹, Santangelo RG, Siegel J, Schal C* (in review). Cockroaches are a Major Source of Indoor Endotoxin. *Scient of the Total Environment* (31 pages, 5 figures, 3 supplementary tables).
4. Lucero I^{†*}, **DeVries ZC**. (in review). The perfect meal: Effects of age and environmental condition on cockroach gel bait performance. *Journal of Economic Entomology* (54 pages, 3 tables, 8 figures).
3. Principato S^{†*}, **DeVries ZC**. (in manuscript). Effects of aging and cleaning on bed bug (Hemiptera: Cimicidae)-derived histamine. To be submitted to the *Journal of Medical Entomology* (35 pages, 2 tables, 3 figures).
2. Grady B^{†*}, **DeVries ZC**. (in manuscript). Cockroach connoisseurs: Contamination of gel baits fails to reduce efficacy against German cockroaches (Blattodea: Ectobiidae). To be submitted to the *Journal of Economic Entomology* (20 pages, 1 tables, 3 figures).
1. Schönberger D, Metz M, Tsuboi M, Bianco G, **DeVries ZC**, Nord A, Svensson EI. (in manuscript). Evolution of steep interspecific metabolic allometry in an old insect order. (32 pages, 5 figures, 2 tables, 9 supplementary figures).

PRESENTATIONS

([†] indicates DeVries student, ^{††} indicates DeVries post-doc/research scientist/trainee, [§] indicates undergraduate student/graduate student/post-doc informally supervised by DeVries; senior author is by default last author unless otherwise indicated).

Summary of Presentations

Category	#
Invited Presentations	23
Submitted Presentations	18
Student/Trainee Presentations	27
Co-Authored Presentations	14
<i>TOTAL PRESENTATIONS</i>	<i>82</i>

Invited Presentations

23. **DeVries ZC.** 2024. The University of Kentucky Technical Directors' Retreat: Aligning academic priorities with stakeholder needs. Entomological Society of America Annual Meeting. Phoenix, AZ.
22. **DeVries ZC.** 2024. Bed Bugs and Human Health: Known Concerns and Emerging Threats. The Association of Structural Pest Control Regulators and Officials Annual Meeting. Lexington, KY.
21. **DeVries ZC.** 2024. The dangers of DIY pest control. The Association of Structural Pest Control Regulators and Officials Annual Meeting. Lexington, KY.
20. **DeVries ZC,** Gordon J, Schal C, Principato S, Gaire S. 2024. Emerging bed bug biocontaminants. National Conference on Urban Entomology. Mobile, AL.
19. **DeVries ZC.** 2023. Bed bug health risks and emerging biocontaminants. Entomological Society of America Annual Meeting. National Harbor, MD.
18. **DeVries ZC.** 2023. Indoor Pests, Pesticides, and Emerging Contaminants. Division of Basic Biomedical Sciences, University of South Dakota (Departmental Seminar). Vermillion, SD.
17. **DeVries ZC.** 2022. Indoor Pests, Pesticides, and Emerging Contaminants. Office of Pesticide Program, United States Environmental Protection Agency. Online.
16. **DeVries ZC.** 2022. Cockroaches, Bed Bugs, and Public Health. Norton Healthcare Pulmonary Summit. Louisville, KY.
15. **DeVries ZC.** 2022. Do-it-yourself Pest Control in Affordable Housing. National Conference on Urban Entomology. Salt Lake City, UT.
14. **DeVries ZC.** 2022. Cockroaches, Bed Bugs, and Public Health. Kentucky Asthma Symposium. Louisville, KY.

13. **DeVries ZC.** 2022. Urban Pests, Pesticides, and Emerging Contaminants. Department of Entomology, Virginia Polytechnic Institute and State University (Departmental Seminar). Blacksburg, VA.
12. **DeVries ZC.** 2022. Cockroaches, Bed Bugs, and Public Health. The Kentucky Environmental Health Association Annual Educational Conference. Lexington, KY.
11. **DeVries ZC.** 2021. Bed bugs and histamine: Emerging health concerns from a resurged indoor pest. Entomological Society of America Meeting. Denver, CO (delivered online). *Part of an ESA Program symposium (one of only 6 for the entire conference)*
10. **DeVries ZC.** 2021. Indoor Insects: Pesticides, Allergens, and Emerging Contaminants. Children's Environmental Health Summit. Online.
9. **DeVries ZC.** 2021. Indoor Insects: Pesticides, Allergens, and Emerging Contaminants. The University of Georgia Departmental Seminar. Online.
8. **DeVries ZC.** 2019. An Integrative Approach to Urban Entomology. University of Kentucky, Department of Entomology Seminar. Lexington, KY.
7. **DeVries ZC.** 2018. Larry Larson's impact on an urban entomologist. Entomological Society of America Annual Meeting. Vancouver, BC, Canada.
6. **DeVries ZC.** 2018. The intersection of urban entomology and public health: Allergens, pesticides, and emerging indoor contaminants. University of Kentucky, Department of Entomology Seminar. Lexington, KY.
5. **DeVries ZC.** 2018. The intersection of urban entomology and public health: Pesticides, allergens, and emerging contaminants. University of Hawaii at Mānoa, Department of Plant and Environmental Protection Seminar. Honolulu, HI.
4. **DeVries ZC, Sierras A, Schal C.** 2018. A liquid bait for bed bugs? National Conference on Urban Entomology. Cary, NC.
3. **DeVries ZC, Mick R[§], Schal C.** 2016. Baiting for bed bugs: Is it possible? North Carolina Entomological Society. Raleigh, NC (Ph.D. student award).
2. **DeVries ZC, Mick R[§], Schal C.** 2016. Orientation of bed bugs to thermal cues. National Conference on Urban Entomology. Albuquerque, NM (Ph.D. student scholarship).
1. **DeVries ZC.** 2015. Bugs and baits: Changing the way we think about urban pest management. Dow AgroSciences. Indianapolis, IN.

Submitted Presentations

18. **DeVries ZC**. 2023. Bed bug health risks and emerging biocontaminants. Entomological Society of America Annual Meeting. National Harbor, MD.
Part of an ESA Medical, Urban and Veterinary Entomology (MUVE) Section Symposium (“Indoor Pests and Pesticides in Affordable Housing: Using Science to Impact Policy”) organized by DeVries ZC and Schal C.
17. **DeVries ZC**, Gordon J[†], Gaire S⁺⁺, Principato S[†], Sierras A⁺⁺, Santangelo RG, González-Morales MA[§], Menechella M[§], and Schal C. 2021. Bed bugs: An emerging threat to public Health? The National Institutes of Health Common Fund High-Risk, High-Reward Research Symposium. Online (Poster).
16. **DeVries ZC**, Santangelo RG, Schal C. 2019. Bed bugs, histamine, and human health. Entomological Society of America Annual Meeting. St. Louis, MO.
Part of an ESA Medical, Urban and Veterinary Entomology (MUVE) Section Symposium (“Indoor Pests and Human Health: Advocating for Interdisciplinary Interactions”) organized by DeVries ZC and Schal C
15. **DeVries ZC**, R. Santangelo, A. Barbarin, Schal C. 2018. Bed bugs and Histamine: a public health risk? National Conference on Urban Entomology. Cary, NC.
14. **DeVries ZC**, R. Santangelo, J. Crissman, Mick R, A. Suazo, Schal C. 2018. Cost-benefit analysis of total release foggers (TRFs). 9th International IPM Symposium. Baltimore, MD (Poster).
13. **DeVries ZC**, Santangelo RG, Vernon E, Schal C. 2017. Baiting for German cockroaches: effects of bait placement on population and allergen levels. Entomological Society of America Annual Meeting. Denver, CO.
12. **DeVries ZC**, Santangelo RG, Crissman J, Mick R, Suazo A, Schal C. 2017. Efficacy and exposure risks of total release foggers. The International Society for Exposure Science Meeting. Durham, NC.
11. **DeVries ZC**, Mick R[§], Balvín O, Schal C. 2016. Reproductive compatibility and aggregation fidelity among populations and host-associated lineages of bed bugs, *Cimex lectularius*. International Congress of Entomology. Orlando, FL.
10. **DeVries ZC**, Mick R[§], Schal C. 2016. Thermosensory behavior of bed bugs in host location. W.M. Keck Center for Behavioral Biology 17th Annual Student and Postdoc Symposium. Raleigh, NC.
9. **DeVries ZC**, Mick R[§], Schal C. 2016. Feel the heat: Activation, orientation, and feeding responses of bed bugs (*Cimex lectularius*) to different temperatures. Entomological Society of America-Southeastern Branch Meeting. Raleigh, NC.
8. **DeVries ZC**, Schal C. 2014. Reproductive compatibility among populations and host-associated lineages of bed bugs, *Cimex lectularius*. Entomological Society of America Annual Meeting. Portland, OR.
7. **DeVries ZC**, Kells SA, Appel AG. 2014. Effects of starvation and molting on the metabolic rate of the bed bug, *Cimex lectularius*. North Carolina State University Entomology Graduate Student Association Symposium. Raleigh, NC.

6. **DeVries ZC**, Kells SA, Appel AG. 2013. Standard metabolic rate of the common bed bug, *Cimex lectularius*: Effects of temperature, mass, and life stage. Entomological Society of America Annual Meeting. Austin, TX.
5. **DeVries ZC**. 2013. Urban insect respiratory physiology. Auburn University Department of Entomology and Plant Pathology-Seminar. Auburn, AL.
4. **DeVries ZC**, Kells SA, Appel AG. 2013. Effects of starvation on the metabolic rate of the common bed bug, *Cimex lectularius*. Entomological Society of America-Southeastern Branch Meeting. Baton Rouge, LA.
3. **DeVries ZC**, Appel AG. 2012. Standard metabolic rates of *Lepisma saccharina* and *Thermobia domestica*: effects of temperature and mass. Entomological Society of America Annual Meeting. Knoxville, TN.
2. **DeVries ZC**, Appel AG. 2012. Respiratory physiology of the bed bug, *Cimex lectularius* (Cimicidae). Auburn University, Department of Entomology and Plant Pathology-Seminar. Auburn, AL.
1. **DeVries ZC**, Henry RP. 2010. The effects of hypoxia on behavior and oxygen uptake in two species of giant aquatic salamander: *Siren lacertina* and *Amphiuma means*. The Auburn University 7th Annual Undergraduate Research Forum, Auburn, AL.

Student/Trainee Presentations

27. Jackson D[†], Sierras AJ, **DeVries ZC**. 2024. Essential oils: Are they essential for German cockroach control? Entomological Society of American Annual Meeting. Phoenix, AZ
26. Grady B[†], **DeVries ZC**. 2024. Cockroach connoisseurs: How contamination of insecticidal baits affects German cockroach behavior. Entomological Society of American Annual Meeting. Phoenix, AZ
25. Principato S[†], **DeVries ZC**. 2024. Bed bug-derived histamine: Potential health implications and mitigation strategies. Entomological Society of American Annual Meeting. Phoenix, AZ
24. Blevins H[†], **DeVries ZC**. 2024. Neonicotinoid Resistance in the German Cockroach (Dictyoptera: Blattellidae). Entomological Society of American Annual Meeting. Phoenix, AZ
23. Katz O[†], **DeVries ZC**. 2024. Assessing German cockroach (*Blattella germanica*) allergen introduction and in-home management. Entomological Society of American Annual Meeting. Phoenix, AZ
22. Lopina A[†], **DeVries ZC**. 2024. Effects of resources and conspecifics on harborage selection in the German Cockroach (*Blattella germanica*). Entomological Society of American Annual Meeting. Phoenix, AZ

21. Gordon J[†], Sierras A^{††}, Appel AG, Eva M, Jackson D[†], Principato S[†], Gaire S^{††}, and **DeVries ZC**. 2024. Failures of DIY pest control products for cockroach control. National Conference on Urban Entomology. Mobile, AL
20. Grady B[†], and **DeVries ZC**. 2024. Behavioral responses of bed bugs (*Cimex lectularius* L.) to commonly used residual insecticides. National Conference on Urban Entomology. Mobile, AL.
19. Principato S.[†], **DeVries ZC**. 2024. Effects of surface type and distance traveled on the efficacy of a *Beauveria bassiana*-Based Biopesticide (Aprehend[®]) for Bed Bug (Hemiptera: Cimicidae) Control. National Conference on Urban Entomology. Mobile, AL.
18. Jackson D[†], Sierras A^{††}, **DeVries ZC**. 2024. Efficacy of essential oils in German cockroach control. National Conference on Urban Entomology. Mobile, AL.
17. Gordon J[†], Sierras A^{††}, Penn J, **DeVries ZC**. 2023. Perceptions and pitfalls of do-it-yourself cockroach control. Entomological Society of America Annual Meeting. National Harbor, MD.
16. Lucero I[†], Gaire S^{††}, **DeVries ZC**. 2023. The effects of proper application on cockroach gel bait performance. Entomological Society of America Annual Meeting. National Harbor, MD.
First place student competition for the president's prize
15. Grady B[†], **DeVries ZC**. 2023. Behavioral responses of bed bugs to common control products. Entomological Society of America Annual Meeting. National Harbor, MD.
Second place student competition for the president's prize
14. Principato S[†], **DeVries ZC**. 2023. Bed bugs and *Beauveria bassiana* (Aprehend[®]): Determining how distance traveled and surface type affect efficacy. Entomological Society of America Annual Meeting. National Harbor, MD.
13. Katz O[†], Gordon J[†], Schal C, **DeVries ZC**. 2023. Tissue distribution of the German cockroach (*Blattella germanica* L.) allergen Bla g 5. Entomological Society of America Annual Meeting. National Harbor, MD (Poster).
12. Sierras A^{††}, **DeVries ZC**. 2023. Urban Pests and Public Health. The Kentucky Environmental Health Association Annual Educational Conference. Lexington, KY.
11. Gordon J[†], **DeVries ZC**. 2022. Investigation of a novel allergen from the common bed bug (Hemiptera: Cimicidae) Entomological Society of America Annual Meeting. Vancouver, BC, Canada.
First place student competition for the president's prize
10. Lucero I[†], Gaire S^{††}, **DeVries ZC**. 2022. The perfect meal: Determining how aging affects cockroach gel bait performance. Entomological Society of America Annual Meeting. Vancouver, BC, Canada.
Second place student competition for the president's prize
9. Principato S[†], Romero A, **DeVries ZC**. 2022. Histamine production in common urban arthropods. Entomological Society of America Annual Meeting. Vancouver, BC, Canada.

8. Gaire S⁺⁺, **DeVries ZC**. 2022. Pyrethroids fail to repel German cockroaches in free-moving assays. Entomological Society of America Annual Meeting. Vancouver, BC, Canada.
7. Gordon J[†], Santangelo RG, González-Morales[§] MA, Menechella M[§], Schal C, **DeVries ZC**. 2021. More than the bite: Introduction of environmental contaminants into the home by bed bugs (Hemiptera: Cimicidae). Entomological Society of America Meeting. Denver, CO (online).
6. Principato S[†], **DeVries ZC**. 2021. Evaluation of the ability of arthropods to contaminate the indoor environment with histamine. Entomological Society of America Meeting. Denver, CO (Poster, online).
5. Gaire S⁺⁺, Gordon J[†], **DeVries ZC**. 2021. Common bed bugs possess a robust ability to produce histamine. Entomological Society of America Meeting. Denver, CO (online).
4. Gaire S⁺⁺, Gordon J[†], **DeVries ZC**. 2021. Common bed bugs possess a robust ability to produce histamine. University of Kentucky Society of Postdoctoral Scholars Symposium. Lexington, KY.
3. Gordon J[†], Santangelo RG, González-Morales MA[§], Menechella M[§], Schal C, **DeVries ZC**. 2021. Histamine distribution in bed bug (Hemiptera: Cimicidae) infested homes. Entomological Society of America North Central Branch Meeting. Online.
2. Gaire S⁺⁺, Gordon J[†], **DeVries ZC**. 2021. Histamine production by the common bed bug (*Cimex lectularius* L.). Entomological Society of America North Central Branch Meeting. Online.
1. Gordon J[†], Santangelo RG, González-Morales MA[§], Menechella M[§], Schal C, **DeVries ZC**. 2021. Characterization of the spatial distribution of histamine in bed bug infested homes. National Conference on Urban Entomology. Online.

Co-Authored Presentation

14. González-Morales MA[§], **DeVries ZC**, Sierras A⁺⁺, Santangelo RG, Kakumanu ML, Schal C. 2021. Resistance to Fipronil in the Common Bed Bug (Hemiptera: Cimicidae). Entomological Society of America Meeting. Denver, CO (online).
13. Kakumanu ML, **DeVries ZC**, Schal C. 2021. Detection of cockroach allergens, monitoring their levels and mitigation strategies to reduce allergen levels in infested areas. Entomological Society of America Meeting. Denver, CO (online).
12. González-Morales MA[§], **DeVries ZC**, Sierras A⁺⁺, Santangelo RG, Kakumanu ML, Schal C. 2021. Resistance to Fipronil in the Common Bed Bug, *Cimex lectularius* L. (Hemiptera: Cimicidae). National Conference on Urban Entomology. Online.
11. González-Morales MA, **DeVries ZC**, Kakumanu ML, Sierras A, Schal C. 2019. Fipronil resistance in the German cockroach: Some things never change. Entomological Society of America Annual Meeting. St. Louis, MO.

10. Schal C, **DeVries ZC**, Santangelo RG. 2019. Effective interventions eradicate cockroaches and reduce allergens in the home environment. Entomological Society of America Annual Meeting. St. Louis, MO.
9. Saveer A, **DeVries ZC**, Schal C. 2019. Mating and starvation modulate host-seeking and feeding propensity in bed bug females. Entomological Society of America Annual Meeting. St. Louis, MO.
8. Kakumanu ML, **DeVries ZC**, Santangelo RG, and Schal C. 2019. Microbial diversity of urban pests: German cockroach vs. bed bug. Ecological Society of America Annual Meeting. Louisville, KY.
7. González-Morales MA, **DeVries ZC**, Kakumanu ML, Sierras A, Schal C. 2019. Fipronil and pyrethroid resistance in the German cockroach: Some things never change. Southeastern Branch of the Entomological Society of America Annual Meeting. Mobile, AL.
6. Booth W, Lawrence C, Holleman G, Balvin O, Robison G, **DeVries ZC**, Vargo E, Schal C. 2018. Unravelling the Invasion dynamics of the bed bug using molecular tools. National Conference of Urban Entomology. Research Triangle Park, NC.
5. Kakumanu ML, **DeVries ZC**, Barbarin A, Santangelo RG, Schal C. 2018. Impact of bed bugs on the microbial diversity of infested homes. National Conference of Urban Entomology. Research Triangle Park, NC.
4. Robison G, **DeVries ZC**, Balvin O, Vargo E, Schal C, Booth W. 2015. Rapid and pervasive mitochondrial heteroplasmy with recombination in the bed bug, *Cimex lectularius*. Entomological Society of America Annual Meeting. Minneapolis, MN.
3. Sirman AE, **DeVries ZC**, Donoviel ZS, Hood WR. 2014. The effects of early nutrition on metabolic rate and fitness in the house mouse (*Mus musculus*). Society for Integrative and Comparative Biology Meeting. Austin, TX (Poster).
2. DeLong BM, **DeVries ZC**, Appel AG, and Miller DM. 2013. The effects of temperature and strain on bed bug egg standard metabolic rates. Entomological Society of America-Southeastern Branch Meeting. Baton Rouge, LA.
1. DeLong BM, **DeVries ZC**, Appel AG, and Miller DM. 2012. Bed bug (*Cimex lectularius* L.) egg surface morphology and water loss metrics. Entomological Society of America Annual Meeting. Knoxville, TN.

ADVISING

Summary of Advising

Category	My Role	Current	Prior	Total
Research Scientists	Advisor	1	1	2
Postdoctoral Scholars	Advisor	0	1	1
PhD Students	Advisor	2	1	3
MS Students	Advisor	3	1	4

	Committee Member	3	1	4
Undergraduate Students	Mentor	4	2	6
<i>Total Advisees</i>	-	<i>13</i>	<i>7</i>	<i>20</i>

Dissertation Committee Chair

3. Ben Grady, Entomology, Status: In-Process, (August 2022-Present)
Awards: National Conference on Urban Entomology Travel Award (2024, \$300); Pest Management Foundation Scholarship (2024, \$2000); Second place student competition for the president’s prize, Entomological Society of America Annual Meeting (2023); Pi Chi Omega Dr. Austin Frishman Scholarship (2023, \$2000).
2. Simona Principato, Entomology, Status: In-Process, (January 2021-Present).
Awards: ESA MUVE Shripat Kamble Urban Entomology Graduate Student Award for Innovative Research, Entomological Society of America (2023, \$1000); National Conference on Urban Entomology Travel Award (2024, \$300); Pest Management Foundation Scholarship (2023, \$2000; 2024, \$2000); ESA MUVE Student Travel Award (2023, \$500); Pi Chi Omega Scholarship (2023, \$2000; 2024, \$2000).
1. Johnalyn Gordon, Entomology, Status: Degree Awarded, (August 2020 – May 2024).
Awards: First place PhD student competition, National Conference on Urban Entomology (2024); National Conference on Urban Entomology Travel Award (2024, \$300); Friends of IPM Doctoral Graduate Student Award, Southern IPM Center (2024, \$2000); ESA MUVE Shripat Kamble Urban Entomology Graduate Student Award for Innovative Research, Entomological Society of America (2023, \$1000); First place student competition for the president’s prize, Entomological Society of America Annual Meeting (2022); Pest Management Foundation Scholarship (2021, \$2000; 2022, \$2000); Pi Chi Omega Alain VanRyckeghem Scholarship (2021, \$2000); College of Agriculture, Food and Environment Karri Casner Environmental Sciences Fellowship (2021, \$1800); ESA MUVE Travel Award (2021, \$500); Larry Larson Graduate Student Award for Leadership in Applied Entomology, ESA (2021, \$1000).
Current Position: Postdoctoral Research Scholar, University of Florida.

Master’s Thesis Committee Chair

4. Allison Lopina, Entomology, Status: In-Process, (January 2024-present).
3. Hannah Blevins, Entomology, Status: In-Process, (August 2023-present)
Awards: ESA MUVE MS Student Recognition Award (2024); Honorable Mention NSF Graduate Research Fellowship Program (2024); Pi Chi Omega Scholarship (2024, \$2000); Second place UK GradResearch Live (3MT) Competition, University of Kentucky (2023).
2. Olivia Katz, Entomology, Status: In-Process, (January 2023-present)
Awards: Pi Chi Omega Founders Endowment Scholarship (2024, \$2000); Pest Management Foundation Scholarship (2024, \$1000).
1. Isabelle Lucero, Entomology, Status: Degree Awarded, (January 2021 – December 2023).

Awards: Pest Management Foundation Scholarship (2024, \$1000); First place student competition for the president's prize, Entomological Society of America Annual Meeting (2023); Pi Chi Omega Founders Endowment Scholarship (2023, \$2000); Second place student competition for the president's prize, Entomological Society of America Annual Meeting (2022); College of Agriculture, Food and Environment Diversity Research & Teaching Fellowship (2021-2022, \$11,000; 2022-2023, \$11,000; 2023, \$5500).

Current Position: Education and Compliance Officer, J.T.Eaton.

Master's Thesis Committee Member

4. James Nelson, Entomology, Status: In-Process, MS plan B student (online). (2023 - Present).
3. Dan Lingeman, Entomology, Status: In-Process, (2023-present).
2. Sarah Latyn, Entomology, Status: In-Process, MS plan B student (online). (2021 - Present).
1. Paul Baker, Entomology, "Aggregation Behavior in the Bed Bug, *Cimex lectularius* L.", Status: Degree Awarded. (2019 - 2020).

Undergraduate Mentorship

6. Macey Dumas, Forestry (2024-present)
5. Katherine Zimmerman, Agriculture (2024-present)
4. Julia Andrade, Biology (2023-present)
3. Daniela Jackson, Agricultural and Medical Biotechnology (2023-present)
Awards: National Conference on Urban Entomology BS Student Scholarship (2024, \$1500); University of Kentucky Summer Undergraduate Research Experience in Environmental Health Sciences (SURES) Program (2024, \$5000); College of Agriculture, Food and Environment (CAFE) Undergraduate Research Award (2023, \$1000).
2. Brianna Bryant, Biology (2023)
1. Henry Morgan, Biomedical Engineering (2021-2022)
Awards: First Place Department of Entomology 2022 Poster Session, Department of Entomology, University of Kentucky (2022), College of Agriculture, Food and Environment (CAFE) Undergraduate Research Award (2022, \$1000); University of Kentucky Summer Undergraduate Research Experience in Environmental Health Sciences (SURES) Program (2022, \$5000)

Directed Learning (excluding theses, dissertations)

3. Gretchen Thomas. Research Scientist I. In Progress (September 2024-present).
Description: Advised in urban entomology research and extension.
2. Dr. Sudip Gaire. Postdoctoral Research Scholar. Completed (June 2020 – September 2022).
Description: Advised in urban entomology research and extension.

Awards: Entomological Society of America (ESA) Medical, Urban and Veterinary Entomology (MUVE) Early Career Award (2021, \$500); 1st place Oral Presentation, University of Kentucky Society of Postdoctoral Scholars Symposium (2021, \$300).

Current Position: Principal Entomologist, Rentokil-Terminix.

1. Dr. Angela Sierras. Research Scientist II. Completed (May 2020 – February 2024).

Description: Advised a research scientist in my lab.

Current Position: Research and Development Scientist, Syngenta.

EXTENSION TRAINING AND CONSULTING ACTIVITIES

(This includes trainings, workshops, certifications, and consultations. Descriptions of each activity are provided for context/program impact).

Extension Training and Consulting Activities

31. University of Kentucky Pest Control Short Course. November 5-7, 2024.
Designed and coordinated an in-person training meeting for pest control operators in Kentucky and surrounding states. This meeting involves 23 1-hour talks from speakers around the country and provided training for >400 pest control operators.
30. University of Kentucky Technical Director's Retreat (Lexington, KY). September 30-October 1, 2024 (scheduled)
Will host a meeting for pest control company technical director's from around the country to discuss the future and current needs of pest control, and how research can be utilized to address these needs (~30 attendees).
29. University of Kentucky Cicada Killers on Campus. 2024.
Helped facilities deal with a problem involving cicada killers close to a building. Advised of alternative management strategies and solutions to resolve the problem while keeping Kentucky students and employees safe.
28. University of Kentucky Brown Recluse Spider Problem. 2024.
Helped facilities deal with a sensitive brown recluse spider problem in a building on campus. Activities involved reviewing the actions proposed by the pest control company, meeting on site to assess the situation, and providing feedback on what to expect and what actions should be taken next.
27. Kentucky Department of Agriculture Licensed Pest Control Operator's (LPCO) Exam. Lexington, KY. February 2024.
Updated and administered the LPCO exam, which consists of 260 multiple choice questions and 40 specimen identification questions (February: 30 examinees; June: 29 examinees).
26. University of Kentucky Bed Bug Problem. January 31, 2024.
Helped facilities dealing with a sensitive bed bug concern on campus by providing a thorough inspection and recommendation on action to correct the problem.
25. University of Kentucky Pest Control Short Course. November 1-3, 2023.

Designed and coordinated an in-person training meeting for pest control operators in Kentucky and surrounding states. This meeting involved 23 1-hour talks from speakers around the country and provided training for >420 pest control operators.

24. University of Kentucky Pest Control Contract Review. 2023-present
Assisted in developing and reviewing the request for proposals (RFP) for the University pest control contract. This contract covers services of all university properties and is essential to protecting the health and safety of the students, staff, clinicians, and faculty on campus.
23. Blue Grass Army Depot Powder Post Beetle Inspection. August 31, 2023.
Inspected pallets for the presence of powder post beetles. Identified powder post beetle damage and provide control recommendations to eliminate the beetles from pallets currently support small munitions.
22. University of Kentucky Technical Director's Retreat (Lexington, KY). August 28-29, 2023.
Hosted a meeting for pest control company technical director's from around the country to discuss the future and current needs of pest control, and how research can be utilized to address these needs (28 attendees).
21. City of Paducah, KY, Bed Bug Inspection. August 14, 2023.
Provided a detailed review of ongoing bed bug control practices and an inspection of multiple units in a historic building that currently houses low-income residents. A final report was submitted to the City of Paducah, KY, detailing poor pest control practices which are contributing to the ongoing bed bug problem.
20. Washington, D.C., Housing Authority Pest Control Training and Inspection. May 15-16, 2023
Provided a two-day training program for the maintenance staff of Washington D.C. Housing Authority (DCHA), such that they could become more involved in pest control and protect themselves and others from indoor pests. Our collaboration has sparked a discussion with DCHA to try and redesign pest control in these communities so that it is effective, affordable, and sustainable.
19. Kentucky Department of Agriculture Licensed Pest Control Operator's (LPCO) Exam. Lexington, KY. July 2023 and November 2023.
Updated and administered the LPCO exam (July, November), which consists of 260 multiple choice questions and 40 specimen identification questions (July: 40 examinees; November: 37 examinees).
18. University of Kentucky Pest Control Short Course. Lexington, KY. November 1-3, 2022.
Designed and coordinated an in-person training meeting for pest control operators in Kentucky and surrounding states. This meeting involved 18 1-hour talks from speakers around the country and provided training for >400 pest control operators and awarded >6,300 CEUs.
17. University of Kentucky Technical Director's Retreat. Lexington, KY. August 29-30, 2022.
Hosted a meeting for pest control company technical directors from around the country to discuss the future and current needs of pest control, and how research can be utilized to address these needs (25 attendees).

16. Kentucky Department of Agriculture Licensed Pest Control Operator's (LPCO) Exam. Lexington, KY. July 2022 and November 2022.
Updated and administered the LPCO exam (July, November), which consists of 260 multiple choice questions and 40 specimen identification questions (July: 23 examinees; November: 30 examinees).
15. National Pest Management Association (NPMA) Bed Bug Best Management Practices. 2022.
Reviewed and assisted in updating the comprehensive list of best practices for bed bug management published by the NPMA.
14. University of Kentucky Pest Control Short Course. Lexington, KY. November 9-11, 2021.
Designed and coordinated an in-person and online training meeting for pest control operators in Kentucky and surrounding states. This meeting involved 15 1-hour talks from speakers around the country and provided training for >400 pest control operators and awarded >6,300 CEUs.
13. University of Kentucky Technical Director's Retreat. Lexington, KY. September 19-21, 2021.
Hosted a meeting for pest control company technical directors from around the country to discuss the future and current needs of pest control, and how research can be utilized to address these needs (20 attendees).
12. Kentucky Department of Agriculture Pest Control Advisory Board-Pesticide Application Regulation Working Group. Frankfort, KY. June 2021 - August 2021.
Served on a working group to revise pesticide application regulations based on guidance from the EPA and new Kentucky Statute passed into law in 2021.
11. Kentucky Department of Agriculture Licensed Pest Control Operator's (LPCO) Exam. Frankfort, KY. May 11, 2021 and November 16, 2021.
Updated and administered the LPCO exam (July, November), which consists of 260 multiple choice questions and 40 specimen identification questions (May: 16 examinees; November: 35 examinees).
10. The University of Kentucky Online Pest Control Training Series (Webinar). Online. October 2020 – December 2020.
Designed and coordinated an online webinar series (8 weeks, 16 CEUs) to replace our annual University of Kentucky Pest Control Short Course (canceled due to COVID). Weekly enrollment > 420, and >6,700 CEUs provided.
9. Pest Control in Bourbon Warehouses (Consultation). Frankfort, KY. December 2020 – May 2020.
Inspected bourbon warehouses for cockroaches, identified the species of interest, and provided management recommendation to the pest control company involved.
8. University of Kentucky Housing-Pest Management (Consultation). Lexington, KY. September 2020 – December 2020.
Visited graduate and family housing, assessed current pest problems, and provided recommendations for pest control moving forward.

7. Kentucky Department of Agriculture Licensed Pest Control Operator's (LPCO) Exam. Frankfort, KY. July 29, 2020 and November 10, 2020.
Updated and administered the LPCO exam (July, November), which consists of 260 multiple choice questions and 40 specimen identification questions (30 examinees).
6. Kentucky Department of Agriculture Structural Fumigation Exam. November 10, 2020.
Coordinated the complete redesign of this exam, which was >40 years old and contained outdated material (1 examinee).
5. Pest Control Ride-Alongs. Lexington, KY. January 2020.
Visited with several pest control companies in Lexington, KY and rode along with their technicians. Provided feedback on novel strategies that they could employ to better serve their clients.
4. University Housing, North Carolina State University, Cockroach Control Training. Raleigh, NC. 2019.
Consultation and demonstration of a community-wide cockroach management plan.
3. North Carolina Farmworker Institute Bed Bug Training. Durham, NC. 2018.
Provided practical information on bed bugs for those working with migrant farmworkers (e.g. identification, safety tips, best management practices)
2. Childersburg Housing Authority Bed Bug Training. Childersburg, AL. 2013.
Trained property management and staff on the best practices for bed bug inspections and management. Met with residents and answered questions regarding bed bugs.
1. Sylacauga Housing Authority Bed Bug Training. Sylacauga, AL. 2013.
Trained property management and staff on the best practices for bed bug inspections and management. Met with residents and answered questions regarding bed bugs.

EXTENSION MATERIALS (PUBLICATIONS, FACT SHEETS, VIDEOS)

([†] indicates DeVries student, ^{††} indicates DeVries post-doc/research scientist/trainee, [§] indicates undergraduate student/graduate student/post-doc informally supervised by DeVries; senior author is by default last author unless otherwise indicated; * indicates material underwent peer-review)

Summary of Extension Materials Produced

Category	#
Peer-Reviewed Publications	9
Publications	8
Videos	1
News Briefs	14
TOTAL EXTENSION ITEMS	32

Peer Reviewed Extension Publications

9. Gordon J[†], Larson J, **DeVries ZC**. (in press). Centipedes and millipedes. University of Kentucky Cooperative Extension Services, 8 pgs.
8. Lopina A[†], **DeVries ZC**. 2024. Head Lice (ENTFACT-607). University of Kentucky Cooperative Extension Services, 4 pgs.
7. Lopina A[†], **DeVries ZC**. 2024. Carpenter Ants (ENTFACT-603). University of Kentucky Cooperative Extension Services, 4 pgs.
6. Blevins H[†], Larson J, **DeVries ZC**. 2024. Boxelder bugs (ENTFACT-444). University of Kentucky Cooperative Extension Services, 3 pgs.
5. Katz O[†], **DeVries ZC**, Larson J. 2024. Sowbugs and Pillbugs (aka Rolly-Pollies) (ENTFACT-439). University of Kentucky Cooperative Extension Services, 3 pgs.
4. Blevins H[†], Larson J, **DeVries ZC**. 2024. Springtails (ENTFACT-420). University of Kentucky Cooperative Extension Services, 3 pgs.
3. Larson J, **DeVries ZC**, Bessin R. Imported Fire Ants in Kentucky (ENTFACT-469). 2023. University of Kentucky Cooperative Extension Services, 4 pgs.
2. Gordon J[†], Gaire S^{††}, **DeVries ZC**, 2022. So you found a bug – what’s next? University of Kentucky Cooperative Extension Service, 2 pg.
1. Coyle D, Brosius T, **DeVries ZC**, Schmidt-Jeffris R, Gott RC, Loudon C, Saguez J, Simonsen T, Van Den Berg J, McDonnell R, Ronai I, Zhu L, Siebert M, Wessels F, Hamm R, Higgins L, Thompson S, Serikawa R, Spomer N, Spencer JL. 2020. COVID-19: Reflections from entomologist who rose to the occasion. American Entomologist 66(3):34-41.

General Extension Publication

8. Gordon J[†], **DeVries ZC**. 2024 (August). Bed bug supplement: Beyond the bite. PCT Magazine. 2 pgs.
7. Gaire S^{††}, **DeVries ZC**. 2024. Myth Busters: Do pyrethroid-based products really repel German cockroaches. PCT Magazine. 2 pgs. (<https://www.pctonline.com/article/german-cockroach-control-mythbusting/>)
6. **DeVries ZC**. 2023. Detecting and Managing Bed Bug Bites (appeared in print with the title “Beyond the Bite”). PCT Magazine. 5 pgs (<https://www.pctonline.com/article/detecting-and-managing-bed-bug-bites/>).
5. **DeVries ZC**. 2023. Mixing it up: A technician’s guide to cockroach baits. PCT Magazine. 2 pgs (<https://www.pctonline.com/article/mixing-it-up-a-technicians-guide-to-cockroach-baits/>).

4. **DeVries ZC.** 2020. Pest Control and COVID-19 (ENTFACT-652). University of Kentucky Cooperative Extension Service, 1 pg.
3. **DeVries ZC.** 2020. A PMP's Guide to COVID-19 (ENTFACT-651). University of Kentucky Cooperative Extension Service, 2 pgs.
2. **DeVries ZC** 2019. University Housing-Pest Management (brochure). University Housing, DASA Facilities, Department of Entomology and Plant Pathology; North Carolina State University.
1. **DeVries ZC, X.P. Hu, and Appel AG.** 2013. Battling bed bugs-knowing the enemy. Alabama Cooperative Extension System, 8 pgs.

Extension Videos Since Appointment at UK

1. Gordon J[†], **DeVries ZC.** 2021. Video: How to Use Cockroach Bait (Entfact 614video). University of Kentucky Cooperative Extension Service, 2:14.
(<https://www.youtube.com/watch?v=SgrcHyHRryo>)

Extension News Briefs Since Appointment at UK

14. **DeVries ZC.** 2024. Pest Proofing Your Home.
(<https://kentuckypestnews.wordpress.com/2024/10/08/pest-proofing-your-home/>)
13. **DeVries ZC.** 2024. Time for Termites! Kentucky Pest News
(<https://kentuckypestnews.wordpress.com/2024/04/23/time-for-termites/>)
12. **DeVries ZC.** 2023. Pest-Proofing Your Home
(<https://kentuckypestnews.wordpress.com/2023/09/12/pest-proofing-your-home/>)
11. **DeVries ZC.** 2023. Managing Mosquitoes in Kentucky
(<https://kentuckypestnews.wordpress.com/2023/07/11/managing-mosquitoes-in-kentucky/>)
10. **DeVries ZC.** 2022. Fall Invaders (podcast) (<https://ukfcsext.podbean.com/e/fall-invaders/>)
9. **DeVries ZC.** 2022. Managing Mosquitoes in Kentucky
(<https://kentuckypestnews.wordpress.com/2022/07/12/managing-mosquitoes-in-kentucky/>)
8. **DeVries ZC.** 2022. Time for Termites! Kentucky Pest News
(<https://kentuckypestnews.wordpress.com/2022/04/26/time-for-termites/>)
7. **DeVries ZC.** 2021. Pest-Proofing Your Home. Kentucky Pest News
(<https://kentuckypestnews.wordpress.com/2021/09/28/pest-proofing-your-home/>)
6. **DeVries ZC.** 2021. Managing Mosquitoes in Kentucky. Kentucky Pest News
(<https://kentuckypestnews.wordpress.com/2021/07/06/managing-mosquitoes-in-kentucky/>).
5. Larson J, **DeVries ZC.** 2021. Bugs that make you itch! UK CAFE News.
(<https://exclusives.ca.UK.edu/2021/anr/bugs-and-other-things-make-you-itch/>).

4. **DeVries ZC.** 2020. Pest-Proofing Your Home. Kentucky Pest News (<https://kentuckypestnews.wordpress.com/2020/09/08/pest-proofing-your-home/>).
3. **DeVries ZC,** Larson J. 2020. New stinging ant species could cause problems for Kentuckians. UK CAFE News (<https://news.ca.UK.edu/article/new-stinging-ant-species-could-cause-problems-kentuckians>).
Additional Media Coverage: [Phys](#), [Northern Kentucky Tribune](#), [Western Kentucky Star](#)
2. **DeVries ZC.** 2020. Time for Termites! Kentucky Pest News (<https://kentuckypestnews.wordpress.com/2020/04/21/time-for-termites/>).
1. **DeVries ZC.** 2020. Pest Control and COVID-19. Kentucky Pest News (<https://kentuckypestnews.wordpress.com/2020/04/07/pest-control-and-covid-19/>).

EXTENSION PRESENTATIONS

([†] indicates DeVries student, ^{††} indicates DeVries post-doc/research scientist/trainee, [§] indicates undergraduate student/graduate student/post-doc informally supervised by DeVries; first author presented the talks unless otherwise indicated; senior author is by default last author unless otherwise indicated).

Summary of Extension Presentations

Category	# of presentations (# of attendees)
Invited	75 (14,502)
Student/Trainee	30 (4,730)
<i>TOTAL PRESENTATIONS</i>	<i>105 (19,232)</i>

Invited Extension Presentations Since Appointment at UK

75. **DeVries ZC.** 2024. Controlling Cockroaches and Protecting Public Health. Texas A&M AgriLife Winter CEU Class. San Antonio, TX (Online Oral Presentation, 55 min, ~200 attendees)
74. **DeVries ZC.** 2024. Controlling Cockroaches and Protecting Public Health. University of Kentucky Pest Control Short Course. Lexington, KY (Oral Presentation, 60 min, ~360 attendees)
73. **DeVries ZC.** 2024. The Dangers of DIY Pest Control. Cook’s 2024 Fall Recertification Webinar. Online (Webinar, 60 min, ~350 attendees).
72. **DeVries ZC.** 2024. Cockroach Research Update. University of Georgia Structural GTBOP Webinar. Online (Webinar, 60 min, ~400 attendees).

71. **DeVries ZC.** 2024. Bed Bug 101: Back to Basics. Arkansas Pest Management Association. Benton, AR (Oral Presentation, 60 min, 150 attendees)
70. **DeVries ZC.** 2024. Cockroach Research Update. Kentucky Pest Management Association Summer Meeting. Louisville, KY (Oral Presentation, 60 min, 150 attendees).
69. **DeVries ZC.** 2024. PCT Pest Lessons: Bed Bugs and Public Health Implications. PCT Online Webinar (Webinar, 60 min, 170 attendees).
68. **DeVries ZC.** 2024. Bed Bug 101: Back to Basics. Alabama Pest Control Association Summer Meeting. Orange Beach, AL (Oral Presentation, 60 min, 100 attendees).
67. **DeVries ZC.** 2024. Controlling Cockroaches and Protecting Public Health. Alabama Pest Control Association Summer Meeting. Orange Beach, AL (Oral Presentation, 60 min, 100 attendees).
66. **DeVries ZC.** 2024. Bed Bug Biology and Management. Cook's 2024 Spring Recertification Webinar. Online (Webinar, 60 min, ~300 attendees).
65. **DeVries ZC.** 2024. Beyond the Basics with Bed Bugs. Minnesota Structural Pest Management Conference. Minneapolis, MN (Oral Presentation, 60 min, ~550 attendees).
64. **DeVries ZC.** 2024. The Dangers of DIY Pest Control. The Ohio State University Pesticide Safety Education Program, Live Commercial Pesticide Recertification Webinars-Structural and Vertebrate Pests. Online (Webinar, 60 min, ~150 attendees).
63. **DeVries ZC.** 2024. Bed Bug Management. The Ohio State University Pesticide Safety Education Program, Live Commercial Pesticide Recertification Webinars-Structural and Vertebrate Pests. Online (Webinar, 30 min, ~150 attendees).
62. **DeVries ZC.** 2024. Cockroach Management. The Ohio State University Pesticide Safety Education Program, Ohio Pesticide Commercial Applicator Recertification Conference. Columbus, OH (Oral Presentation, 30 min, ~100 attendees).
61. **DeVries ZC.** 2024. Bed Bug Management. The Ohio State University Pesticide Safety Education Program, Ohio Pesticide Commercial Applicator Recertification Conference. Columbus, OH (Oral Presentation, 30 min, ~100 attendees).
60. **DeVries ZC.** 2024. Cockroach Management. The Ohio State University Pesticide Safety Education Program, Ohio Pesticide Commercial Applicator Recertification Conference. Cincinnati, OH (Oral Presentation, 30 min, ~100 attendees).
59. **DeVries ZC.** 2024. Bed Bug Management. The Ohio State University Pesticide Safety Education Program, Ohio Pesticide Commercial Applicator Recertification Conference. Cincinnati, OH (Oral Presentation, 60 min, ~100 attendees).
58. **DeVries ZC.** 2024. Bed Bugs. The Tennessee Pest Control Association January Technician's School. Jackson, TN (Oral Presentation, 60 min, 75 attendees).

57. **DeVries ZC.** 2024. Cockroaches. The Tennessee Pest Control Association January Technician's School. Jackson, TN (Oral Presentation, 60 min, 75 attendees).
56. **DeVries ZC.** 2024. Controlling Cockroaches & Protecting Public Health. The 78th Texas A&M University Urban Pest Management Conference and Workshop. College Station, TX (Oral Presentation, 60 min, ~230 attendees).
55. **DeVries ZC.** 2024. Bed Bug 101: Back to basics. The 78th Texas A&M University Urban Pest Management Conference and Workshop. College Station, TX (Oral Presentation, 60 min, ~230 attendees).
54. **DeVries ZC.** 2023. Bed Bugs: Back to Basics. University of Kentucky Pest Control Short Course. Lexington, KY (Oral Presentation, 60 min, ~420 attendees).
53. **DeVries ZC.** 2023. The Perfect Meal: Determining how Aging Affects Cockroach Bait Performance. NPMA Pestworld 2023. Honolulu, HI (Oral Presentation, 60 min, ~100 attendees).
52. **DeVries ZC.** 2023. Battling bed bugs. The Greater Chicago Pest Management Alliance Meeting of the Minds. Tinley Park, IL (Oral, 90 min, ~250 attendees).
51. **DeVries ZC.** 2023. Indoor pests and human health. The 9th Annual Tennessee Bed Bug, Cockroach, and Rodent Management Meeting. Knoxville, TN (oral presentation, 60 min, ~90 attendees).
50. **DeVries ZC.** 2023. Bed bug biology and control. Kentucky Pest Management Association Annual Summer Meeting. Louisville, KY (Oral, 60 min, ~160 attendees).
49. **DeVries ZC.** 2023. Everything you never thought you wanted to know about bed bugs! Lexington Senior Center "Now you Know" Program, Lexington, KY (Oral Presentation, 60 min, ~15 attendees).
48. **DeVries ZC.** 2023. No Trespassing! Identification, Management, and Prevention of Common Indoor Pests. Boone County Extension Program, Burlington, KY (Oral Presentation, 90 min, ~25 attendees).
47. **DeVries ZC.** 2023. Everything you never wanted to know about bed bugs. UK FCS Agent Training. Owensboro, KY (Oral Presentation, 180 min, ~20 attendees).
46. **DeVries ZC.** 2023. Everything you never wanted to know about bed bugs. UK FCS Agent Training. London, KY (Oral Presentation, 180 min, ~25 attendees).
45. **DeVries ZC.** 2023. Everything you never wanted to know about bed bugs. UK FCS Agent Training. Georgetown, KY (Oral Presentation, 180 min, ~50 attendees).
44. **DeVries ZC.** 2023. Dangers of DIY Pest Control. The Ohio State University Pesticide Safety Education Program, Ohio Pesticide Commercial Applicator Recertification Conference. Columbus, OH (Oral Presentation, 60 min, ~200 attendees).

43. **DeVries ZC.** 2023. Bed Bug Management. The Ohio State University Pesticide Safety Education Program, Ohio Pesticide Commercial Applicator Recertification Conference. Columbus, OH (Oral Presentation, 30 min, ~200 attendees).
42. **DeVries ZC.** 2023. Dangers of DIY Pest Control. The Ohio State University Pesticide Safety Education Program, Ohio Pesticide Commercial Applicator Recertification Conference. Cincinnati, OH (Oral Presentation, 60 min, ~150 attendees).
41. **DeVries ZC.** 2023. Bed Bug Management. The Ohio State University Pesticide Safety Education Program, Ohio Pesticide Commercial Applicator Recertification Conference. Cincinnati, OH (Oral Presentation, 30 min, ~150 attendees).
40. **DeVries ZC.** 2022. Bed Bugs, Histamines, and the Health Impact of Bed Bug Infestations. National Pest Management Association Pests and Public Health Summit. San Antonio, TX. (Oral Presentation, 60 min, ~150 attendees).
39. **DeVries ZC.** 2022. Cockroach Update. New England Pest Management Association Fall Training. Online (Webinar, 60 min, ~300 attendees).
38. **DeVries ZC.** 2022. Welcome to the 21st Century, Where DIY Treatments Run Wild. University of Kentucky Pest Control Short Course. Lexington, KY. (Oral Presentation, 60 min, ~400 attendees).
37. **DeVries ZC.** 2022. Urban Pests. University of Kentucky East Agricultural and Natural Resources Agents Annual Update. Winchester, KY. (Oral Presentation, 40 min, ~85 attendees).
36. **DeVries ZC.** 2022. Bed Bug Basics. Rose Pest Solutions 17th Annual Technical Conference. Mount Pleasant, MI. (Oral Presentation, 60 min, ~400 attendees).
35. **DeVries ZC.** 2022. Cockroach Management. The Indiana Vector Control Association Annual Metering. Louisville, KY. (Oral Presentation, 60 min, ~150 attendees).
34. **DeVries ZC.** 2022. Bed Bug Management. The Ohio State University Pesticide Safety Education Program, Ohio Pesticide Commercial Applicator Recertification Conference. Columbus, OH (Oral Presentation, 30 min, ~300 attendees).
33. **DeVries ZC.** 2022. Bed Bug Management. The Ohio State University Pesticide Safety Education Program, Live Commercial Pesticide Recertification Webinars-Structural and Vertebrate Pests. Online (Webinar, 30 min, ~300 attendees).
32. **DeVries ZC.** 2021. Bed Bugs and Cockroaches-What's New? University of Kentucky Pest Control Short Course. Lexington, KY (Oral, 60 min, ~430 attendees).
31. **DeVries ZC.** 2021. Think like a cockroach! Kentucky Pest Management Association Annual Summer Meeting. Louisville, KY (Oral, 60 min, ~230 attendees).
30. **DeVries ZC.** 2021. Bed Bug Biology and Control. The Kentucky Pest Management Association Virtual Training Meeting (March). Online (Webinar, 60 min, ~70 attendees).

29. **DeVries ZC.** 2021. Bed Bug Biology and Control. The Kentucky Pest Management Association Virtual Training Meeting (February). Online (Webinar, 60 min, ~70 attendees).
28. **DeVries ZC.** 2021. Bed Bug Management. The Ohio State University Pesticide Safety Education Program, Live Commercial Pesticide Recertification Webinars-Structural and Vertebrate Pests. Online (Webinar, 30 min, ~300 attendees).
27. **DeVries ZC.** 2021. Cockroaches. The 85th Annual Purdue Pest Management Conference. Online (Webinar, 120 min, ~350 attendees).
26. **DeVries ZC.** 2020. Roaches. The Ohio Pest Management Association 2020 Winter Meeting. Online (Webinar, 60 min, ~70 attendees).
25. **DeVries ZC.** 2020. Bed Bugs. The Ohio Pest Management Association 2020 Winter Meeting. Online (Webinar, 60 min, ~70 attendees).
24. **DeVries ZC.** 2020. Understanding the Full Potential of Bed Bugs as an Important Public Health Pest. The Global Bed Bug Summit. Online (Webinar, 50 min, ~200 attendees).
23. **DeVries ZC.** 2020. Cockroach 101: Back to the Basics. The University of Kentucky Online Pest Control Training Series. Online (Webinar, 50 min, ~430 attendees).
22. **DeVries ZC.** 2020. Bed Bug Biology and Control. Kansas State University Commercial Pesticide Applicator Training Program. Online (Webinar, 60 min, ~64 attendees).
21. **DeVries ZC.** 2020. Fall Invaders and Pest Proofing. University of Kentucky Entomology Extension Series. Online (Webinar, 60 min, ~60 attendees).
20. **DeVries ZC.** 2020. The Allergenic Threats of Insects. University of Florida #Beyond the Label Webinar Series. Online (Webinar, 60 min, ~38 attendees).
19. **DeVries ZC.** 2020. Everything You Never Thought You Wanted to Know About Bed Bugs. USDA Forest Service (safety meeting). Online (Webinar, 60 min, ~35 attendees).
18. **DeVries ZC.** 2020. Cockroaches! Back to the Basics. National Pest Management Association "Back to the Basics" Webinar Series. Online (Webinar, 60 min, ~100 attendees).
17. **DeVries ZC.** 2020. Do-it-Yourself Pest Control: Bug Bombs and Cockroaches. Kentucky Pest Management Association Recertification Training. Burlington, KY (Oral Presentation, 50 min, ~100 attendees).
16. **DeVries ZC.** 2020. Do-it-Yourself Pest Control: Bug Bombs and Cockroaches. Kentucky Pest Management Association Recertification Training. Elizabethtown, KY (Oral Presentation, 50 min, ~100 attendees).
15. **DeVries ZC.** 2019. Allergenic Threat of Insects. The University of Kentucky Pest Control Short Course. Lexington, KY (Oral Presentation, 50 min, ~400 attendees).

14. **DeVries ZC.** 2019. Do-It-Yourself Pest Control: Why are “Bug Bombs” Still Here? Greater Chicago Pest Management Alliance Meeting of the Minds. Chicago, IL (Oral Presentation, 50 min, ~400 attendees).
13. **DeVries ZC.** 2019. The War Against German Roaches: Bombing Roaches with Total Release Foggers. NPMA PestWorld 2019. San Diego, CA (Oral Presentation, 50 min, ~100 attendees).
12. **DeVries ZC.** 2019. Cockroaches, allergens, and their remediation. 5th Annual Tennessee Bed Bug and Cockroach Management Meeting. Knoxville, TN (Oral Presentation, 50 min, ~150 attendees).
11. **DeVries ZC.** 2019. New data on old technology: Why total release foggers don't measure up against cockroaches in homes. National Pest Management Association (NPMA) Carolinas/Mid-Atlantic Summer Conference. Myrtle Beach, SC (Oral Presentation, 50 min, ~150 attendees).
10. **DeVries ZC.** 2018. Bed Bug Feces and Allergies: Why Bed Bugs Continue to be an Important Public Health Pest. The Global Bed Bug Summit. Denver, CO (Oral Presentation, 50 min, ~500 attendees).
9. **DeVries ZC.** 2018. Everything you never thought you wanted to know about bed bugs. North Carolina Department of Labor Annual Training Meeting. Raleigh, NC (Oral Presentation, 2 hrs, ~30 attendees).
8. **DeVries ZC.** 2018. Bed bug research update and the future of innovations in bed bug management. National Pest Management Association (NPMA) Carolinas/Mid-Atlantic Summer Conference. Wrightsville Beach, NC (Oral Presentation, 50 min, ~50 attendees).
7. **DeVries ZC.** 2018. Medical importance of cockroaches and bed bugs. North Carolina Pest Management Association PCT School. Durham, NC (Oral Presentation – P-phase, 50 min, ~400 attendees).
6. **DeVries ZC.** 2017. Challenges and opportunities surrounding bed bug baits. North Carolina Pest Management Association PCT School. Durham, NC (Oral Presentation – P-phase, 50 min, ~400 attendees).
5. **DeVries ZC.** 2016. The promise and pitfalls surrounding bed bug baits. The Global Bed Bug Summit. Indianapolis, IN (Oral Presentation, 50 min, ~200 attendees).
4. **DeVries ZC.** 2016. Cockroaches and bed bugs: Similarities, differences, and what it means for management. North Carolina Pest Management Association PCT School. Durham, NC (Oral Presentation – P-phase, 50 min, ~400 attendees).
3. **DeVries ZC.** 2015. Effects of baiting strategies on German cockroach populations and allergen levels. North Carolina Pest Management Association PCT School. Durham, NC (Oral Presentation, 15 min, ~400 attendees).
2. **DeVries ZC.** 2013. Urban insect physiology and management implications. Alabama Pest Control Association Meeting. Auburn, AL. (Oral Presentation, 15 min, ~100 attendees).

1. **DeVries ZC.** 2013. Bed Bug Biology and Management. Extension Agents, Huntsville, AL (oral presentation, performed remotely via conference call, 50 min, ~25 attendees).

Student/Trainee Extension Presentations Since Appointment at UK

30. Grady B, Katz O, **DeVries ZC.** 2024. Bed bugs and cockroaches. Central Kentucky Commercial Pesticide Training. Greensburg, KY (Oral, 60 min, ~10 attendees)
29. Principato S[†], **DeVries ZC.** 2024. New bed bug findings: Human health and control. University of Kentucky Pest Control Short Course. Lexington, KY (Oral, 60 min, ~360 attendees).
28. Lopina A[†], **DeVries ZC.** 2024. German cockroach harborage selection & foraging movement. University of Kentucky Pest Control Short Course. Lexington, KY (Oral, 15 min, ~360 attendees).
27. Katz O[†], **DeVries ZC.** 2024. German cockroach allergen mitigation. University of Kentucky Pest Control Short Course. Lexington, KY (Oral, 15 min, ~360 attendees).
26. Blevins H[†], **DeVries ZC.** 2024. Dinotefuran resistance in the German Cockroach (*Blattella germanica*). University of Kentucky Pest Control Short Course. Lexington, KY (Oral, 15 min, ~360 attendees).
25. Grady B[†], **DeVries ZC.** 2024. Contamination of gel baits fails to reduce efficacy against German cockroaches. University of Kentucky Pest Control Short Course. Lexington, KY (Oral, 15 min, ~360 attendees).
24. Daniela J[†], **DeVries ZC.** 2024. Essential Oils: Are they essential for German cockroach control? National Pest Management Association PestWorld. Denver, CO (Oral, 15 min, ~30 attendees).
23. Principato S[†], **DeVries ZC.** 2024. Bed bug-derived histamine: potential health implications and mitigation strategies. National Pest Management Association PestWorld. Denver, CO (Oral, 15 min, ~30 attendees).
22. Blevins H[†], **DeVries ZC.** 2024. Dinotefuran resistance in the German Cockroach (*Blattella germanica*). National Pest Management Association PestWorld. Denver, CO (Oral, 15 min, ~30 attendees).
21. Lopina A[†], **DeVries ZC.** 2024. German cockroach harborage selection & foraging movement. National Pest Management Association PestWorld. Denver, CO (Oral, 15 min, ~30 attendees).
20. Grady B[†], **DeVries ZC.** 2024. Contamination of gel baits fails to reduce efficacy against German cockroaches. National Pest Management Association PestWorld. Denver, CO (Oral, 15 min, ~30 attendees).
19. Katz O[†], **DeVries ZC.** 2024. German cockroach allergen mitigation. National Pest Management Association PestWorld. Denver, CO (Oral, 15 min, ~30 attendees).
18. Lucero I[†], **DeVries ZC.** 2023. Understanding Cockroaches and Cockroach Control. University of Kentucky Pest Control Short Course. Lexington, KY (Oral Presentation, 60 min, ~420 attendees).

17. Grady B[†], **DeVries ZC**. 2023. Bed Bug Behavioral Responses to Insecticides. University of Kentucky Pest Control Short Course. Lexington, KY (Oral Presentation, 25 min, ~420 attendees).
16. Principato S[†], **DeVries ZC**. 2023. Bed Bug Control Using *Beauveria bassiana*. University of Kentucky Pest Control Short Course. Lexington, KY (Oral Presentation, 25 min, ~420 attendees).
15. Katz O[†], **DeVries ZC**. 2023. The Health Effects of Cockroaches. University of Kentucky Pest Control Short Course. Lexington, KY (Oral Presentation, 10 min, ~420 attendees).
14. Lucero I[†], **DeVries ZC**. 2023. Cockroaches. Kentucky Pest Management Association Recertification Training. Elizabethtown, KY (Oral Presentation, 60 min, ~50 attendees).
13. Grady B[†], **DeVries ZC**. 2023. Cockroaches. Kentucky Pest Management Association Recertification Training. Burlington, KY (Oral Presentation, 60 min, ~50 attendees).
12. Lucero I[†], Gaire S^{††}, **DeVries ZC**. 2022. German Cockroach Bait Consumption and Efficacy. University of Kentucky Pest Control Short Course. Lexington, KY (Oral, 15 min, ~50 attendees).
11. Principato S[†], **DeVries ZC**. 2022. Mitigation of bed bug-produced histamine through common cleaning methods. University of Kentucky Pest Control Short Course. Lexington, KY (Oral, 15 min, ~50 attendees).
10. Gordon J[†], **DeVries ZC**. 2022. Tropomyosin: A novel bed bug allergen. University of Kentucky Pest Control Short Course. Lexington, KY (Oral, 15 min, ~50 attendees).
9. Grady B[†], **DeVries ZC**. 2022. German cockroach biology. University of Kentucky Pest Control Short Course. Lexington, KY (Oral, 15 min, ~50 attendees).
8. Lucero I[†], Gaire S, **DeVries ZC**. 2022. German Cockroach Bait Consumption and Efficacy. National Pest Management Association PestWorld. Boston, MA (Oral, 10 min, ~50 attendees).
7. Principato S[†], **DeVries ZC**. 2022. Mitigation of bed bug-produced histamine through common cleaning methods. National Pest Management Association PestWorld. Boston, MA (Oral, 10 min, ~50 attendees).
6. Gordon J[†], **DeVries ZC**. 2022. Tropomyosin: A novel bed bug allergen. National Pest Management Association PestWorld. Boston, MA (Oral, 10 min, ~50 attendees).
5. Grady B[†], **DeVries ZC**. 2022. German cockroach biology. National Pest Management Association PestWorld. Boston, MA (Oral, 10 min, ~50 attendees).
4. Gordon J[†], **DeVries ZC**. 2022. Understanding and Controlling Cockroaches. Kentucky Pest Management Association. Louisville, KY (Oral, 60 min, ~250 attendees)
3. Sierras A^{††}, **DeVries ZC**. 2022. Bed Bugs: Think Before You Treat! Kentucky Pest Management Association. Louisville, KY (Oral, 60 min, ~250 attendees).

2. Lucero I[†], Gaire S^{††}, DeVries ZC. 2021. German cockroach bait consumption and foraging. National Pest Management Association PestWorld. Las Vegas, NV (Oral, 10 min, ~30 attendees).
1. Principato S[†], DeVries ZC. 2021. Evaluation of histamine production in common indoor arthropods. National Pest Management Association PestWorld. Las Vegas, NV (Oral, 10 min, ~30 attendees).

NOTE: My trainees have given additional talks not reflected on the CV since I only consider myself to be a co-author when assisting them in initial talk development

MEDIA COVERAGE

28. Interviews on our paper exploring the failures of do-it-yourself cockroach control products. 2024.
[\[Popular Science\]](#) [\[Gizmodo\]](#) [\[Yahoo.com\]](#) [\[Salon\]](#) [\[Earth\]](#) [\[PCT\]](#) [\[Entomology Today\]](#) [\[Lexington Herald-Leader\]](#) [\[Phys\]](#) [\[SciTechDaily\]](#) [\[The Mirage\]](#) [\[EurekAlert\]](#) [\[ScienMag\]](#) [\[Biogenineer.org\]](#) [\[ZME Science\]](#) [\[inkl\]](#)
27. News coverage on termites. 2024.
[\[Yahoo.com\]](#) [\[Kentucky.com\]](#)
26. Interview on bed bug control. 2024.
[\[Salon\]](#)
25. Interview on bed bugs. 2024.
[\[Fox 26 Houston\]](#)
24. Interview on bed bugs and cold weather. 2024.
[\[Lexington Herald-Leader\]](#)
23. Interviews on bed bugs. 2023.
[\[NY Times\]](#) [\[TIME\]](#) [\[CNN\]](#) [\[National Geographic\]](#) [\[Newsweek\]](#) [\[ABC Australia\]](#) [\[Multifamily Dive\]](#)
22. Interview on the next generation of urban entomologists. 2023.
[\[PCT\]](#)
21. Interview on the health effects of bed bugs. 2023.
[\[PCT\]](#)
20. Interviews on our bed bug histamine excretion work. 2022.
[\[UK CAFE News\]](#) [\[Entomology Today\]](#) [\[PCT\]](#) [\[Medical Daily\]](#)
19. Interview on stored product pests. 2022.
[\[Washington Post\]](#)
18. Interview of cockroach and bed bug management in Kentucky. 2022.
[\[WEKU\]](#)

17. Interview on fruit fly management. 2022.
[\[Washington Post\]](#)
16. Interview on DIY wasp deterrence device. 2022.
[\[AFP Fact Check\]](#)
15. Interviews on our bed bug anti-arrestment work. 2021.
[\[UKNow\]](#) [\[PCT\]](#) [\[PMP\]](#) [\[Phys\]](#) [\[ABC-WTVQ\]](#) [\[Kentucky Today\]](#) [\[Sci News\]](#) [\[ZME Science\]](#)
[\[Heromag\]](#) [\[Exterminator News\]](#) [\[Pest Control Daily News\]](#) [\[Exclusive Global News\]](#) [\[SciTech Daily\]](#) [\[Ohio Ag Connection\]](#) [\[Kentucky Ag Connection\]](#) [\[Elizabethtown News Enterprise\]](#)
[\[Verve Times\]](#) [\[News Break\]](#) [\[Mirage News Australia\]](#) [\[24hTech\]](#) [\[FocusTechnica\]](#)
14. Media Coverage of our annual University of Kentucky Pest Control Short Course. 2021.
[\[PCT\]](#)
13. Interview by “TheHealthy.com” on bed bugs and house dust mites. 2021
[\[TheHealthy\]](#)
12. Interview by Vermont Public Radio on the Challenges of Cockroaches in Public Housing. 2021.
[\[VPR\]](#)
11. Interviews on the Asian Needle Ant in Kentucky. 2020.
[\[UK Now\]](#) [\[Lexington Herald-Leader\]](#) [\[West Kentucky Star\]](#) [\[Norther Kentucky Tribune\]](#)
10. Contributed article to Pest Control Technology with advice for PMPs in relation to COVID-19. 2020.
[\[PCT\]](#)
9. Interviewed by weather.com about the dangers and ineffectiveness of 'bug bombs'. 2019.
[\[Pattnr\]](#)
8. Interview by Gizmodo about "the life of and urban pest scientist". 2019.
[\[Gizmodo\]](#)
7. TV and online interviews for our total release fogger (TRF, 'Bug Bomb') work. 2019.
[\[NC State News\]](#) [\[Science\]](#) [\[New York Post\]](#) [\[Natural History Magazine\]](#) [\[WRAL\]](#) [\[ABC North Carolina \(WTVD\)\]](#) [\[North Carolina Public Radio\]](#) [\[C&E News\]](#) [\[FairWarning\]](#) [\[Yahoo News\]](#) [\[Fox News\]](#) [\[Gizmodo\]](#) [\[PCT Online\]](#) [\[Eurekalert\]](#) [\[Phys.org\]](#) [\[Science Daily\]](#) [\[Tech Explorist\]](#) [\[UPI\]](#) [\[The Siasat Daily\]](#) [\[Tech Times\]](#) [\[ZME Science\]](#) [\[Foreign Affairs\]](#) [\[Long Room\]](#) [\[Business Standard\]](#) [\[Beyond Pesticides\]](#) [\[Earth.com\]](#) [\[Brinkwire\]](#) [\[The Week\]](#) [\[e Science News\]](#) [\[News-Medical\]](#) [\[Eurasia Review\]](#) [\[Science Codex\]](#) [\[Devdiscourse\]](#) [\[Zee News\]](#) [\[ANI News\]](#) [\[Mental Floss\]](#) [\[the Doctor will see you now\]](#) [\[boingboing\]](#) [\[North Carolina Health News\]](#) [\[Tuscon Sentinel\]](#)
6. TV and online Interviews for bed bug histamine work. 2018.
[\[NC State News\]](#) [\[Newsweek\]](#) [\[CBS North Carolina-WNCN\]](#) [\[Kentucky Public Radio WFPL 89.3\]](#) [\[EurekaAlert\]](#) [\[PCT Online\]](#) [\[Gizmodo\]](#) [\[Quartz\]](#) [\[Science News\]](#) [\[Science Daily\]](#) [\[Phys.org\]](#) [\[Atlanta Journal Constitution\]](#) [\[ARS Technica\]](#) [\[Tech Times\]](#) [\[Medpage](#)

[Today](#) [\[DoctorsLounge\]](#) [\[News-Medical\]](#) [\[WeekFacts\]](#) [\[Mental Floss\]](#) [\[Newsmax\]](#) [\[UPI\]](#) [\[Stuff\]](#) [\[The Sun\]](#) [\[Philly.com\]](#) [\[Outbreak News Radio\]](#) [\[WXPI Pittsburgh\]](#)

5. Pest Control Technology (PCT) Interview: “Baits: An ‘Outside-the-Box’ Bed Bug Solution”. 2017. [\[PCT Online\]](#)
4. Web Interview on developing an artificial bait for bed bugs. 2016. [\[NC Health News\]](#)
3. TV Interview on bed bug metabolism, prevention, and management tips. 2013. [\[WSFA\]](#)
2. Web Interview on bed bug biology, management, and ongoing research. 2013. [\[Auburn University\]](#)
1. TV Interview on bed bug problems and management. Trinity Broadcasting Network, WMCF-TV 45, Montgomery, AL. 2013.

OUTREACH AND COMMUNITY ENGAGEMENT

16. Buggin Out! The Living Arts Science Center, Lexington, KY. 2024.
Urban entomology presentation to the public.
15. Insect Presentation for 2nd Grade Children. Stonewall Elementary, Lexington, KY. 2024.
Basic entomology presentation for 2nd Grade children, including hands-on insect demonstrations.
14. Insect Presentation for Pre-School Children. St. Michael’s School, Lexington, KY. 2024.
Basic entomology presentation for preschool children (3-5 years old) including hands-on insect demonstrations.
13. Insect Presentation for Kindergarten Children. Cassidy Elementary, Lexington, KY. 2023.
Basic entomology presentation for Kindergarten children, including hands-on insect demonstrations.
12. Insect Presentation for Pre-School Children. St. Michael’s School, Lexington, KY. 2023.
Basic entomology presentation for preschool children (3-5 years old) including hands-on insect demonstrations.
11. University of Kentucky Curiosity Fair. Lexington, KY. 2022.
Urban entomology presentation to the public (~500 attendees)
10. Insect Presentation for Pre-School Children. Calvary Baptist Church, Lexington, KY. 2022.
Basic entomology presentation for preschool children (3-5 years old) including hands-on insect demonstrations.
9. University of Kentucky Curiosity Fair. Lexington, KY. 2021.

Urban entomology presentation to the public (~500 attendees)

8. Creating Awareness of Agriculture and Life Sciences Disciplines, Degree Programs and Discoveries (CAALS 3D), North Carolina State University (Raleigh, NC). 2018.
Provided a hands-on laboratory experience to 6 high school students from underrepresented groups to increase awareness and interest in careers in agricultural and life sciences
7. Science Fair Judge. Fred Olds School Science, Raleigh, NC. 2016-2018.
6. Brain and Behavior Night, North Carolina Museum of Natural Sciences. Raleigh, NC. 2016-2019
Presentation on urban insect behavior (~300 attendees).
5. BugFest, North Carolina Museum of Natural Sciences Raleigh, NC. 2013-2019.
Urban entomology presentation to the public (>35,000 attendees)
4. Cockroach and bed bug inspection/intervention for the public. Raleigh, NC. 2014-2019.
3. North Carolina State 4-H Competition Judge. Raleigh, NC. 2014-2018.
2. Science of Attraction, Museum of Life and Science. Durham, NC. 2014.
Presentation on chemical ecology to the public (~200 attendees).
1. Cockroach presentation for Pre-School children. Lee-Scott Academy, Auburn, AL. 2013.

TEACHING

Course Offerings Since Appointment at UK

Semester	Course	Credits	Enrollment	Evaluations	
				Value of Course	Quality of Teaching
Spring 2024	ENT 770 - Invisible Itches	1	11	5.0/5.0	5.0/5.0
Spring 2021	ENT 770 - Invisible Itches	1	10 (>30 including extension agents)	4.8/5.0	5.0/5.0
Fall 2018	ENT 132 – Urban Pest Management (NC State University)	3	20	5.0/5.0	5.0/5.0
Fall 2017	ENT 132 – Urban Pest Management (NC State University)	3	20	5.0/5.0	5.0/5.0
Fall 2016	ENT 110 – General Entomology (NC State University)	3	34	5.0/5.0	4.8/5.0
Fall 2015	ENT 110 – General Entomology Laboratory (NC State University)	1	36	5.0/5.0	5.0/5.0

Guest Lectures Since Appointment at UK

Semester	Course	# Lectures	Students
Fall 2024	ENT 530 - Integrated Pest Management	2	16
Fall 2024	ENT 320 – Horticultural Entomology	1	20
Fall 2022	ENT 530 - Integrated Pest Management	2	8
Fall 2022	ABT 201 – Scientific Methods in Biotechnology	1	25
Fall 2022	ENT 320 - Horticultural Entomology	2	25
Fall 2021	ENT/BIO/CPH 561 - Insects Affecting Human and Animal Health	2	16
Fall 2021	ENT 530 - Integrated Pest Management	2	12
Fall 2020	ENT/BIO/CPH 561 - Insects Affecting Human and Animal Health	2	16
Fall 2011	ENT 3040 – General Entomology (Auburn University)	1	20
Spring 2011	Peer Instructor, Conservation Biology Learning Community (Auburn University)	-	-
Fall 2010	Peer Instructor, Conservation Biology Learning Community (Auburn University)	-	-

SERVICE

Department Service

6. Specialty Crop Entomologist Search Committee, Department of Entomology, University of Kentucky (2024-2025; co-chair)
5. Honors and Awards Committee, Department of Entomology, University of Kentucky (2024-present; co-chair)
Helped department identify and nominating deserving members for awards
4. Veterinary Entomology Search Committee, Department of Entomology, University of Kentucky (2023)
3. Graduate Program Committee, Department of Entomology, University of Kentucky (2022-2024)
Assist in acquiring/compiling Program Student Learning Outcomes (PSLOs) and assist in graduate student admission decisions.
2. Self-Study Document Preparation Committee, Department of Entomology, University of Kentucky (2022)
Assisted in assembling the self-study document used for the 6-year review of the Department of Entomology.
1. Planning Committee, Department of Entomology, University of Kentucky (2019-present)
Provide feedback on the needs and direction for the Department moving forward

College and University Service

5. Panelist, CAFE New Faculty Lunch and Learn Series (Topic: "What I wish I knew"), Martin-Gatton College of Agriculture, Food and Environment, University of Kentucky (2024)
4. Agricultural Health and Safety Search Committee, Department of Biosystem and Agricultural Engineering, University of Kentucky (2023-present)
3. Judge, Postdoc Talk Competition, 2022 Society of Postdoctoral Scholars Annual Research & Career Symposium (2022).
One of only five judges selected from the entire University of Kentucky
2. The University of Kentucky Center for Health Equity Transformation (CHET; Affiliate Member, 2021-Present).
1. The University of Kentucky Center for Appalachian Research in Environmental Sciences (UK CARES; Associate Member, 2020-present)
This is an NIEHS Core Center (P30) designed to enhance research capacity focused on major environmental health risks. Served on a working group which assisted in reviewing the center and providing feedback for the upcoming center renewal application (2020).

Professional Service

6. Entomological Society of America (member, 2012-Present)
Honors and Awards Committee Member (MUVE Representative; 2022-present)
Judge for the Entomological Society of American Student Competition for the President's Prize (2022)
Judge for the Henry and Sylvia Richardson Research Grant Award (2020-present)
Judge for the North Central Branch Meeting Student Competition (2021)
5. National Pest Management Association (member, 2022-present)
Technical Committee (member, 2023-present)
4. Associate Editor, *Journal of Economic Entomology* (2020-present)
3. Kentucky Department of Agriculture Pesticide Advisory Board (Member [voting], 2019-present).
This board meets to review and approve individuals requesting to take the pest control licensing exam for the state of Kentucky. In addition, this board reviews pending legislative changes that impact structural pest control rules and regulations
2. Reviewer for the following journals/institutions (since appointment at UK): *Journal of Economic Entomology* (28), *Journal of Medical Entomology* (7), *Physiological Entomology* (3), *Medical and Veterinary Entomology* (3), *Insects* (2), *Ecology and Evolution* (1), *Journal of Thermal Biology* (2), *Journal of Urban Ecology* (2), *Naturwissenschaften* (2), *Acta Biotherectica* (1), *Entomology*, *Ornithology*, and *Herpetology* (1), *Hormones and Behavior* (1), *Journal of Insect Behavior* (1), *PLoS One* (1), *The Canadian Entomologist* (1), *The Florida Entomologist* (1)
1. Other review service (since appointment at UK):

Reviewer for the National Institutes of Health Transmission of Vector-Borne and Zoonotic Diseases (TVZ) study section (1)

Reviewer (invited but declined) for the US Department of Agriculture (USDA) Agriculture and Food Research Initiative's (AFRI) Pests and Beneficial Species in Agricultural Production Systems program (A1112) (1).

Reviewer for University of Kentucky Extension Fact Sheet (1)

Reviewer for the Center for Integrative Environmental Health Sciences, Univ. of Louisville (1)
USDA Hatch Grant (1)