Entomological and Agroecological Researcher with extensive experience in integrated pest management research projects focusing on insect vectors, trophic interactions, and invasive species. Highly developed skills in experimental design, literature review, statistical analyses and data visualization, training and managing technicians, and public speaking.

**RESEARCH ASSISTANTSHIPS:**

**Postdoctoral Research Scholar,** University of California – Davis (Adv: Ian Grettenberger) 2021- Present

* Designed and executed field surveys of natural enemies for the invasive pest *Tuta absoluta* on processing tomato farms throughout California’s Central Valley leading to identification of two target species for future biological control
* Developed protocols and conducted experiments evaluating insecticide efficacy, host resistance, and natural enemy performance within Bio-Security Level 3 laboratories and greenhouses
* Created an R-based web applications for viewing up-to-date and historical population data and environmental conditions for lettuce pests in the Salinas valley (<https://salinaspestmap.shinyapps.io/salinas-pestmap/>)
* Established and maintained communication with a network of growers, PCAs, and extension specialists

**Graduate Research Assistant, USDA AFRI Predoctoral Fellow,** Washington State University (Adv: David Crowder) 2016-2021

* Developed and implemented a research program investigating impacts of biological control agents on insect vectors and plant pathogen transmission in dry pea production in Washington State, generating several peer-reviewed publications
* Hired, trained, and organized multiple teams of undergraduate technicians to assist with field, greenhouse, and laboratory research projects, including mentorship to develop research skills and future career opportunities
* Served as data manager and statistical lead on collaborative agriculture and ecology research projects investigating drought’s impacts on insect pest performance, pharmaceutical contaminants in pollinators, organic farming practices contributions to human socioeconomic responses, among others

**EDUCATION:**

**Washington State University, College of Agricultural, Human, and Natural Resource Sciences (CAHNRS)** Pullman, WA

Doctor of Philosophy in Entomology June 2016- May 2021

* GPA: 4.0
* Dissertation: “Evaluating the Non-consumptive Effects of Insect Predators on Aphids and Aphid-borne Viruses”

**Cornell University, College of Agriculture and Life Science**  Ithaca, NY

Bachelor of Science in Entomology, Cum Laude with Honors in Research May 2016

* GPA: Cumulative: 3.52, Major: 3.78
* GRE: Verbal Reasoning: 164, Quantitative Reasoning: 163

**PEER-REVIEWED PUBLICATIONS:**

**B.W. Lee**, R.E. Clark, S. Basu, & D.W. Crowder, 2022, Predators affect a plant virus through density and trait-mediated indirect effects on vectors. *Food Webs*, 33, e00251.

**B.W. Lee,** S. Basu, S. Bera, C.L. Casteel, & D.W. Crowder, 2021, Responses to predation risk cues and alarm pheromones affect

plant virus transmission, *Oecologia,* 196(4), 1005-1015.

**B.W. Lee**, T. Ugine, & J. Losey, 2018, An Assessment of the Physiological Costs of Autogenous Defenses in Native and Introduced

Lady Beetles, *Environmental Entomology,* 47(4), 1030-1038.

S. Basu, **B.W. Lee**, R.E. Clark, S. Bera, C.L. Casteel, & D.W. Crowder, 2022, Legume plant defenses and nutrients mediate indirect interactions between soil rhizobia and chewing herbivores. *Basic and Applied Ecology*. 64. 57-67

O.M. Smith, D.M. Jocson, **B.W.** Lee, R.J. Orpet, ... & Northfield, T. D. 2022. Identifying Farming Strategies Associated With Achieving Global Agricultural Sustainability. *Frontiers in Sustainable Food Systems*, 259.

J. Kansman, S. Basu, C.L. Casteel, D. Crowder, **B.W. Lee**, C.T. Nihranz, D.L. Finke, 2022, Plant water stress reduces aphid performance: Exploring mechanisms driven by water stress intensity, *Frontiers in Ecology and Evolution*, Accepted

R. Clark, S. Basu, **B.W. Lee,** & D. Crowder, 2019, Tri-trophic interactions mediate the spread of a vector-borne plant pathogen,

*Ecology, 100 (11),* e02879.

S. Basu, R.E. Clark, Z. Fu, **B.W. Lee**, & D.W. Crowder 2021, Insect alarm pheromones in response to predators: ecological trade-offs

and molecular mechanisms, *Insect Biochemistry and Molecular Physiology,* 10.1016/j.ibmb.2020.103514.

C. Parker, L. Bernaola, **B. Lee,** … R. Skinner, 2019, Entomology in the 21st Century: Tackling Insect Invasions, Promoting

Advancements in Technology, and Using Effective Science Communication, *Journal of Insect Science,*

19(4), 1–11

K.R. Holt, L. Bernaola, … **B.W. Lee** … 2020, Synergisms in Science: Climate Change and Integrated Pest Management Through the

Lens of Communication—2019 Student Debates, *Journal of Insect Science,* 20 (5), 31, 1-11

**EXTENSION:**

University of California Cooperative Extension Vegetable Crops Newsletter serving Colusa, Sutter and Yuba Counties Aug/Sept 2022

* *The South American Tomato Leafminer Tuta absoluta: Threats of Invasion and Future Plans for Control*

Sacramento Valley Processing Tomato Production Meeting (Invited) February 2022

* *Proactive IPM strategies for the invasion of Tomato Leafminer* Tuta absoluta

**GRANT SUPPORT AND AWARDS:**

WSU CSANR Lawrence Hickman Endowed Graduate Fellowship in Sustainable Agriculture ($1000) 2021

Outstanding PhD Student of the Year, WSU Department of Entomology ($2000) 2019

Achievement Rewards for College Scientists Fellowship ($22,500) 2016-2019

Cornell University College of Agriculture and Life Sciences Hatch Grant ($1000) 2015-2016

Robert F. and Mary Lou Harwood Graduate Fellowship ($600) 2019

**PROFESSIONAL SERVICE AND LEADERSHIP:**

**Entomological Society of America (ESA)**

***ESA National Conference 2020***

* Organizer of “Pathogen-mediated Ecological Interactions: From Microbes to Complex Ecosystems” Section

symposium and co-moderator of panel discussion.

***Science Policy Fellowship Program*** 2019

* Finalist

***ESA Student Debate Competition*** 2017-2019

* Member of 2017 WSU Team debating “What is the single greatest threat to arthropod biodiversity”,

finished first place ($500), co-authored article published in *American Entomologist* (Spring 2019)

* Captain of 2018 WSU Team debating “What is the most harmful invasive insect species in the world?”,

finished first place ($500), co-authored manuscript summarizing debate in revision to *Journal of Insect Science*

* Captain of 2019 WSU Team debating “What is the most influential impact of climate change on Entomology?”,

winner of section ($100), co-authoring manuscript in *Annals of the Entomological Society of America*

***Pacific Branch 2018 Conference Planning Committee***Reno, NV

* Organized the Student and Early Career Professional Employment Fair

**WSU Graduate and Professional Student Science Policy Initiative (GPSSPI)** Pullman, WA

***President*** 2019-2020

***Secretary, Founding Member***2018-2019

* Connect graduate and professional student science advocates with policy makers and academics
* Host elected officials, academics, and government workers to discuss policy careers and research funding opportunities
* Received GPSA Affiliate Funding for 2019-2020 ($2500)

**WSU Entomology Graduate Student Association (EGSA)** Pullman, WA

***Vice President, Faculty Liaison***2017- 2018, Spring 2019-Present

* Organize and oversee EGSA committees and represent students in faculty meetings and events

**WSU Graduate and Professional Student Association (GPSA)** Pullman, WA

***Senator***2019-2020

* Serve on communications committee and represent WSU Entomology Graduate students in GPSA decision-making

**PRESENTATIONS:**

UC Davis 7th Annual Postdoctoral Research Symposium March 2022

* *A Proactive Approach to Prepare for Invasion of South American Tomato Leafminer*, Tuta absoluta

UC Davis Animal Behavior Graduate Group Seminar (Invited) January 2022

* *Insect Predators Drive Vector-borne Pathogen Dynamics through Feeding and Fear*

WSU Doctoral Examination Seminar

* *Evaluating the non-consumptive effects of insect predators on aphids and aphid-borne virus transmission* April 2021

WSU R Working Group (Invited) December 2019

* *Overview of Piecewise Structural Equation Modeling*

Entomological Society of America Meeting, 10-minute Paper Presentations

* *Predation Risk Cues Affect Pea Aphid Acquisition and Transmission of a Plant Virus* (First Place) November 2019
* *Evaluating the Non-consumptive effects of Predators on aphid-borne viruses*  November 2018

WSU CAHNRS 3-minute Thesis Competition March 2019

* Presented *“Insect Predators: A Solution or Threat to Plant Health in Agroecosystems”*,

placed first in Entomology department and second in the CAHNRS competitions ($500, <https://youtu.be/qtrn1-C1CGk>)

Washington State University Undergraduate Biology Club (Invited) February 2018

* *Identifying the Non-consumptive Effects of Predators on the Spread of Aphid-borne Viruses*

Washington State University Entomology Department December 2017

* *PhD Proposal Seminar*

**WORK EXPERIENCE:**

**Washington State University**

***CRLA Certified Tutor*** Spring 2017

* Tutored student-athletes in Microbiology and Entomology courses
* Developed learning activities, study programs, and review strategies for high-risk students

**Cornell University** Ithaca, NY

***Laboratory of Associate Professor Dr. John Losey***  2013-2016

* Research Assistant, maintained insect colonies for research projects, assisted researchers in conducting experiments, represented the NSF funded citizen-science “Lost Ladybug Project” at teaching and outreach events

***Laboratory of Dr. Linda Rayor*** 2013-2015

* Research Assistant and Animal Caretaker, maintained colonies of arthropods used for research and teaching, assisted with graduate student research projects

**TEACHING AND MENTORSHIP:**

**Washington State University** Pullman, WA

***Reproducible Research Techniques with R*** November 2020

* Assistant Instructor for 5-day graduate-level workshop covering data storage, manipulation, visualization,

and modeling techniques using a variety of R packages.

***Teaching Assistant***

* AFS 101: Introduction to Agricultural and Food Systems Fall 2016
* ENTOM 102: Insects, Infection, and Illness: Medical Entomology for Non-science Majors Spring 2018

**Northwest Science Association Annual Meeting**, *Assistant Instructor*  March 2019

* Cotaught “Intro to Manipulating and Visualizing Data in R” lesson to conference attendees at

Lewis and Clark State College in Lewiston, ID

***Regional Approaches to Climate Change (REACCH) Summer Undergraduate Internship Program*** Summer 2017

* Mentored Undergraduate Kristin Nesbitt, “Viruses and Aphids”

**OUTREACH EXPERIENCE:**

**Science Talk 2019 Annual Conference,** *Poster Presentation* April 2019

* Presented poster titled, “*Science Advocacy in Rural Washington”,* summarizing WSU GPSSPI events with

invited academics and elected state officials, and discussing strategies for communicating research to legislators

**Naturalist Outreach Program:** 2015-2016

* Wrote, produced, and co-starred in a 10-minute informational YouTube video, “Arthropod Predators: Nature’s Defenders”, aimed at educating children on the value of predator species and biological control (<https://youtu.be/CgMo-DWc8xU>)
* Developed and conducted educational presentations for 2nd through 6th grade students on biological

and ecological principles, focused on the use of biological control in agriculture

***Entomology Graduate Student Association (EGSA), Outreach Speaker*** Pullman, WA

* WSU Entomology Department Insect Expo April 2017-2019
* Boy Scouts of America, Insect Day Speaker Summer 2017
* Creatures of the Night (Palouse Clearwater Environmental Institute, Moscow, ID) October 2017

**ACTIVITIES AND SKILLS:**

**Skills:** Proficient in R Programming and Statistics, Experienced Public Speaker, Experienced Teaching Assistant and Tutor

**Recreational:** New Harmony Jazz Band (saxophone), Cooking, Fermentation Science, Science Advocacy and Activism