JENNIFER KATE PETERSON

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Portland, Oregon, 97212, USA

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EDUCATION

2011-2015 Ph.D in Ecology & Evolutionary Biology
Princeton University
"*Life history consequences of infection with Chagas disease agent* Trypanosoma cruzi *for its invertebrate host* Rhodnius prolixus"

2009-2011 M.A. in Ecology & Evolutionary Biology
Princeton University

2006-2008 Post-baccalaureate certification, Ecology, Evolution and Environmental Biology
Columbia University

1997-2001 BFA in Theater Arts
Rutgers University

EMPLOYMENT

2022-present Postdoctoral Research Associate
Department of Biological Sciences
University of Notre Dame
PI: Prof. T. Alex Perkins

2022 Adjunct Professor
College of Arts & Sciences
Lewis and Clark College

2019-2021 Adjunct Assistant Professor of Natural Sciences
University Honors College
Portland State University

2018-2022 Research Affiliate
Center for Clinical Epidemiology & Biostatistics
University of Pennsylvania
PI: Prof. Michael Z. Levy

2017-18 Post-doctoral Researcher
Center for Clinical Epidemiology & Biostatistics
University of Pennsylvania

PI: Prof. Michael Z. Levy

2016 Lecturer
Department of Ecology and Evolutionary Biology
Princeton University

2015-2016 Post-doctoral Researcher
Department of Ecology and Evolutionary Biology
Princeton University
PI: Prof. Andrew P. Dobson

2009-2015 Graduate Assistant in Instruction
Department of Ecology and Evolutionary Biology
Princeton University

2008-2009 Research Assistant
Sackler Institute for Comparative Genomics
American Museum of Natural History, New York City

PUBLICATIONS IN REFEREED JOURNALS (ORCID ID: 0000-0002-0274-6143)

*SENIOR AUTHOR ^CORRESPONDING AUTHOR + STUDENT MENTORED BY JK PETERSON

22. Arevalo-Nieto C, Sheen J+, Condori-Luna GF, Shinnick J, **Peterson JK**, Castillo-Neyra R, Levy MZ. (2022). Incentivizing Multiple Objectives in Evidence-based, Active Surveillance for Urban Disease Vectors. *PLOS Glob Public Health* 2(8): e0000145

21. Varian CP, Saldaña A, Calzada JE, Abad-Franch F, Kieran TJ, Padukone A, **Peterson JK**, Gottdenker NL. (2022). Community structure and microenvironment are associated with Chagas disease vector infection and abundance in a rural landscape. Accepted: *Ecosphere.*

20. **Peterson JK**, Bazuka J, Standley CJ. (2021). One Health and Neglected Tropical Diseases – Multisectoral solutions to endemic challenges. *Tropical Medicine and Infectious Diseases*: 6(1): 4.

19. Billig Rose E, Roy JA, Castillo-Neyra R, Ross ME, Condori-Pino C, **Peterson JK**, Naquira-Velarde C, Levy MZ. (2020). A real-time search strategy for finding urban disease vector infestations. *Epidemiologic Methods*: 9(1).

18. Hylton A+, Fitzpatrick DM, Suepaul R+, Dobson AP, Charles RA, **Peterson JK*^**. (2020). Preliminary characterization of triatomine bug blood meals on the island of Trinidad reveals opportunistic feeding behavior on both human and animal hosts. *Tropical Medicine and Infectious Diseases*: 5(4): 166. **Paper resulting from A. Hylton undergraduate senior thesis, supervised by JK Peterson.**

17. **Peterson JK*^**, Yoshioka K, Hashimoto K, Caranci A, Gottdenker N, Dorn P, Monroy C, Rodriguez S, Saldaña A, Zuniga C. (2019). Epidemiology of Chagas disease in Central America: An Update. *Current Tropical Medicine Reports*: 6, 92-105.

16. **Peterson JK*^**, Hashimoto K, Yoshioka K, Dorn P, Gottdenker N, Caranci A, Stevens L, Zúniga C, Saldaña A, Rodriguez S, Monroy C. (2019). Chagas disease in Central America: Recent findings and current challenges in vector ecology and control. Current Tropical Medicine Reports. 6, 76-91.

15. Gutfraind A[1], **Peterson JK (Co-first author)[1]**, Billig Rose E, Arevalo-Nieto C, Sheen J[+], Condori-Luna GF, Tankasala N, Castillo-Neyra R, Condori-Pino C, Anand P, Naquira-Velarde C, Levy MZ. (2018). Integrating evidence, models, and maps to enhance Chagas disease vector surveillance. *PLoS Neglected Tropical Diseases*: 12(11): e0006883.**[1]Both authors contributed equally to this work.**

14. **Peterson JK[1],** Salazar R[1], Castillo-Neyra R, Borrini K, Condori C, Bartow-McKenney C, Tracy D, Naquira C, Levy, MZ. (2018). *Trypanosoma cruzi* infection does not decrease survival or reproduction of the common bed bug, *Cimex lectularius*. Am J Trop Med Hyg: 98(3): 724-734.
[1]Both authors contributed equally to this work.

13. Cucunubá ZM, Nouvellet P, **Peterson JK**, Bartsch SM, Lee BY, Dobson AP, Basañez MG. (2018). Complementary Paths to Chagas Disease Elimination: The Impact of Combining Vector Control with Aetiological Treatment. *Clinical Infectious Diseases*: 66(suppl_4): S293–S300.

12. Bartsch SM, **Peterson JK**, Hertenstein DL, Skrip L, Ndeffo-Mbah M, Galvani A, Dobson AP, Lee BY. (2017). Comparison and validation of two computational models of Chagas disease: a thirty year perspective from Venezuela. *Epidemics*: 18:81-91.

11. **Peterson JK^**, Graham AL, Elliott RJ[+], Dobson AP, Triana Chávez O. (2016). *Trypanosoma cruzi* - *Trypanosoma rangeli* co-infection ameliorates negative effects of single trypanosome infections in experimentally infected *Rhodnius prolixus. Parasitology*: 143(9): 1157-67. **Contains work resulting from R. Elliott undergraduate senior thesis, supervised by JK Peterson.**

10. **Peterson JK^**, Graham AL. (2016). What are the 'true' effects of *T. rangeli* on its triatomine bug vector? *Journal of Vector Ecology*: 41(1):27-33.

9. Gottdenker NL, Chávez LF, Calzada JE, **Peterson JK**, Santamaría A, Pineda V, Saldaña A. (2016). Trypanosoma *cruzi* and Trypanosoma rangeli co-infection patterns in insect vectors vary across habitat types in a fragmented forest landscape. *Parasitology Open*: 2, E10.

8. **Peterson JK^**, Bartsch SM, Lee BY, Dobson, AP. (2015). Broad patterns in domestic vector-borne *Trypanosoma cruzi* transmission dynamics: synanthropic animals and vector control. *Parasites & Vectors*: 8:537.

7. **Peterson JK^**, Graham AL, Dobson AP, Triana Chavez, O. (2015). *Rhodnius prolixus* life history outcomes differ when infected with different *Trypanosoma cruzi* I strains. *American Journal of Tropical Medicine and Hygiene*: 2;93(3): 564-72.

6. Hollingsworth TD, Adams ER, Anderson RM, [and 43 others, including, **Peterson JK**]. (2015). Quantitative analyses and modeling to support achievement of the 2020 goals for nine neglected tropical diseases. *Parasites & Vectors*: 8:630.

5. Castro LA[1+], **Peterson JK (Co-first author)[1]**, Saldaña A, Peirrera MY, Calzada JE, Pineda V, Dobson AP, Gottdenker NL. (2014). Use of a tethered flight mill to measure flight behavior and performance of *Rhodnius pallescens. Journal of Medical Entomology* 51(5): 1010-1018. [1]**Both authors contributed equally to this work.**

4. Echeverry-Galvis MA, **Peterson JK,** Sulo R. (2014). The Social Nestwork: Tree Structure Determines Nest Placement in Kenyan Weaver Bird Colonies. *PLoS ONE* 9(2): e88761.

3. Dias IMG, Amato G, Cunha HM, DeSalle R, Paglia AP, **Peterson JK,** Fonseca CG. (2009). Isolation, characterization, and cross-species amplification of new microsatellite markers for three opossum species of the Didelphidae family. *Conservation Genetics Resources* 1,1: 405-410.

2. Hutton RL[+], Triana O, Dobson AP, **Peterson JK***. (2022). Disease vector knowledge and healthcare seeking behavior in an endemic urban landscape. *In prep.* Target journal: *Parasites and vectors*. **Manuscript resulting from R. Hutton undergraduate senior thesis, supervised by JK Peterson.**

1. **Peterson JK**, Dobson AP, Triana O, Graham AL. (2022). Infection event characteristics that influence *Rhodnius prolixus* survival. *In prep.* Target journal: *Ecological entomology*.

HONORS AND AWARDS

2021	Ecological Society of America Opportunity Fund Registration Grant
2020	PSUFA Faculty Development Grant
2017	Co-investigator, Global Research Collaboration Grant, University of Georgia (PI: NL Gottdenker)
2014	Crafted Chagas disease-specific content for successful Bill & Melinda Gates Foundation / Task Force for Global Health Award
2014	Princeton Emerging Alumni Scholars Award
2013	Princeton Program for Latin American Studies Summer Graduate Research Grant
2013	Princeton Institute for International and Regional Studies Research Grant
2012	Princeton Program for Latin American Studies Summer Graduate Research Grant
2011	Health Grand Challenges/ Princeton Center for Health and Wellbeing Graduate Research Award

PRESENTATIONS AT INTERNATIONAL CONFERENCES & INVITED LECTURES

2022 Society of Vector Ecology; *Honolulu, Hawaii*
Poster

2021 University of the West Indies; *St. Augustine, Trinidad*
Invited lecture

2021 Ecology and Evolution of Infectious Diseases (EEID); *virtual*
Poster

2021 Instituto Costarricense de Investigación y Enseñanza en Nutrición y Salud (INCIENSAS); *San Jose, Costa Rica*
Invited lecture (presented in Spanish)

2020 American Society of Tropical Medicine and Hygiene Meeting; *virtual*
Poster

2019 Ecology and Evolution of Infectious Diseases (EEID); *Princeton, NJ*
Poster

2017 American Society of Tropical Medicine and Hygiene Meeting; *Baltimore, MD*.
Speaker

2017 Ecology and Evolution of Infectious Diseases (EEID); *Santa Barbara, CA*
Poster

2017 VI International Conference on Infectious Tropical Diseases; *Iquitos, Perú*.
Invited speaker (presented in Spanish)

2016 22nd Meeting of the Intergovernmental Commission for the Subergional Southern Cone Initiative for the Elimination of *Triatoma infestans* and the Interuption of Transfusional Transmission of American Trypanosomiasis (INCOSUR/Chagas); *Asunción, Paraguay*.
Invited speaker (presented in Spanish)

2016 American Society of Tropical Medicine and Hygiene Meeting; *Atlanta, GA*.
Session chair

2016 XIX International Congress for Tropical Medicine and Malaria; *Brisbane, Australia.*
Speaker

2015 American Society of Tropical Medicine and Hygiene Meeting; *New Orleans, LA*.
Invited Session chair & Speaker

2014 Entomological Society of America, 62nd Annual Meeting; *Portland, OR.*
Session creator, organizer & chair

2014 American Society of Tropical Medicine and Hygiene Meeting; *Philadelphia, PA*.
Speaker.

2014 13th International Congress of Parasitology (ICOPA); *Mexico City, Mexico*.
Poster

2013 Centro Internacional de Entrenamiento e Investigaciones Medicas (CIDEM); *Cali, Colombia*
Invited lecture

2013 XXI Congreso Latinoamericano de Parasitología; *Guayaquil, Ecuador*.
Speaker (presented in Spanish)

2012 XVIII International Congress for Tropical Medicine and Malaria; *Rio de Janeiro, Brazil*.
Poster

2011 Congreso Latinoamericano de Parasitología; *Bogotá, Colombia*.
Poster

PARTICIPATION IN THE SCIENTIFIC COMMUNITY

- Editorial board member, PLoS Global Public Health
- Section editor, "Emerging vector-borne diseases in the U. S.," *Current Tropical Medicine Reports.* *https://link.springer.com/journal/40475/topicalCollection/AC_84ba26d60dbccd07bc01f334ad5c6973*
- Guest editor, special issue, "One health and Neglected Tropical Diseases," *Tropical Medicine and Infectious Disease.* *https://doi.org/10.3390/books978-3-0365-0287-8*
- Guest blogger, BMC's 'Bugbitten' blog
- Grant reviewer for The National Science Foundation
- Manuscript reviewer for:

American Journal of Tropical Medicine and Hygiene
BMC Infectious Diseases
Emerging Infectious Diseases
Parasites & Vectors
Parasitology International
Pathogens

Infectious Diseases of Poverty
Insects
International Journal for Parasitology
Insects
Journal of Medical Entomology
Lancet Global Health
Medical and Veterinary Entomology
Peer J
PLoS Neglected Tropical Diseases
Revista Chilena de Historia Natural
Scientific Reports
Trends in Parasitology
Veterinary Parasitology
Zoonoses and Public Health

- Society memberships:
  Society of Vector Ecology (2022)
  Ecological Society of America (2021-present)
  American Society of Tropical Medicine and Hygiene (2012- 2020)
  Society for Advancement of Chicano/Hispanics and Native Americans in Science (2015-16)
  Entomological Society of America (2013-14)

PUBLIC INTEREST WRITING

"Parasites and Vectors: The original renegades" in *Bugbitten,* May 2021
https://blogs.biomedcentral.com/bugbitten/2021/05/28/parasites-and-vectors-the-original-renegades/
"Spreading like wildfire? Parasites in a pyrophilic world**"** in *Bugbitten,* September 2020.
https://blogs.biomedcentral.com/bugbitten/2020/09/25/spreading-like-wildfire-parasites-in-a-pyrophilic-world/
"What the Heck is Chikungunya?" in *Medellin Living*, July 2015.
https://medellinliving.com/chikungunya/
"DIY Insect Displays: Kissing Bug edition" in *Popular Science*, June 2014.
https://www.popsci.com/blog-network/our-modern-plagues/diy-insect-displays-kissing-bug-edition
"Patologías: Explosiòn Cambrica" in *Clickeros*, Canal U, Medellín, Colombia, November 2013.
http://jennipeterson.com/in-the-media/#mg_ld_192
"Enfermedad de Chagas" on *Conexión Antioquia* Radio, November 2013.
Unfortunately, this program is not available online.

TEACHING AND MENTORING

2022 Instructor
Introduction to Statistics (PSY 200)
College of Arts and Sciences
Lewis and Clark College, Portland, OR

- In-person delivery of introductory statistics course required for undergraduate social and biological science majors
- Conducted class meetings three times weekly consisting of lectures, demonstrations, group activities, and open forums
- Designed original material to illustrate key concepts including group labs, projects, lectures, quizzes, and problem sets.
- Lessons ranged from descriptive statistics, probability, correlation, and regression to basic inferential tests including t-test, ANOVA, and chi square
- Assessed student proficiency and areas of improvement with problem sets, quizzes, and exams
- Emphasized the value of understanding of why statistics is done, what statistics can and cannot do, and how to interpret results, using real examples from a variety of disciplines
- Guided students in carrying out data management, analysis, and visualization, both by hand and using spreadsheet software

2021 Instructor

Thesis Prospectus (HON 403; conducted both in person and online)

University Honors College

Portland State University, Portland, OR

- Delivered an online, synchronous, required all-majors course to support students in initiation of advisor-student working relationship and completion of Honors Senior Thesis prospectus
- Conducted course in online environment (D2L), using tools such as discussion forums, assignment boards, announcements, and Google apps.
- Designed written materials intended to guide students in finding a thesis advisor, conducting productive meetings, and staying on top of strict work deadlines
- Mentored students in best practices in written communication with faculty members
- Conducted periodic one on one meetings with students to review progress and outline next steps
- Developed original peer review assignments aimed to spur critical discourse and analysis between interdisciplinary students
- Served as a sounding board for students transitioning from classroom learners of pre-specified information to independent scholars making individual choices

2020-2021 Instructor

Thesis Continuation (HON 403C)

University Honors College

Portland State University, Portland, OR

- Delivered an online, asynchronous required course meant to support students in the completion of their undergraduate senior research theses.
- Conducted course in online environment (D2L), using tools such as discussion forums, assignment boards, announcements, and Google apps.
- Guided students in setting deadlines and making realistic goals for thesis progress.
- Required periodic advisor reports to ensure students communicated with their advisors
- Provided resources for thesis completion including writing tools and reference management software.
- Worked individually with students to resolve a variety of problems related to their theses, including communication with advisors, computing software issues, and emotional issues.
- Created peer-review groups based on feedback from students, and provided opportunities and guidance on conducting peer-review.

2019-2020 Instructor

Urban ecology (HON 203; in-person and online courses)

University Honors College

Portland State University, Portland, OR

- Delivered an all-majors required course in which natural science methods are taught through an Urban Ecology framework
- Conceived of original assignments (papers, labs, presentations, worksheets, games) aimed to develop critical thinking skills, improve formal writing skills, focus students on attention to detail, and develop subject matter expertise for students with a wide range of experience in the sciences
- Developed each lesson with a clear learning objective, which was shared with students
- Selected textbook and readings to complement learning objectives of each lesson
- Presented lesson topics ranging from conceptual (e.g. evolution via natural selection) to

technical (e.g., experimental design) to quantitative (e.g., biostatistics)

- Taught students how to extract key information from academic literature
- Worked rigorously with each student to improve their writing, with evident marked improvements in many students at course completion
- Guided students through a term-long field project for which students collected data for an international wildlife network, and subsequently analyzed the data, reported findings, and interpreted their meaning
- Incorporated frequent group discussion, group activities, and field trips into course
- Graded all student work using detailed rubrics and extensive written feedback
- Concluded course with student presentations and written reports on a research topic of the students' choice formatted as a formal research proposal
- Provided timely feedback through email, in-person meetings, and weekly office hours

2016 Lecturer

Ecology and Epidemiology of Parasites and Infectious Diseases (EEB 328)

Princeton University, Princeton, NJ

- Designed syllabi, managed and delivered a field course integrating classroom and field activities in Gamboa, Panamá
- Lectured on topics ranging from parasitology to mathematical modeling of disease transmission
- Organized field trips and lectures at other scientific institutions in Panama to provide exposure to all facets of tropical biological research (Gorgas National Health Institute, Smithsonian Tropical Research Institute, and Barro Colorado Island)

2010-2016 Mentor and occasional lecturer

Ecology and Evolutionary Biology

Princeton University, Princeton, NJ

- Supervised and mentored students, as detailed on the following pages
- Lectured in undergraduate courses

2012-2015 Assistant in Instruction

Ecology and Epidemiology of Parasites and Infectious Diseases (EEB 328)

Princeton University & Smithsonian Tropical Research Institute, Gamboa, Panama

- Designed and managed new field course, incorporating lectures with field experiences
- Supervised students in design of experiments and analysis of data
- Constructed and evaluated quizzes, presentations, and research papers

2014-2015 Assistant in Instruction

Immune Systems: From Molecules to Populations (EEB/MOL 327)

Princeton University, Princeton, NJ

- Developed student skills in science writing by providing detailed feedback on draft papers
- Provided unlimited one-on-one meetings and feedback during office hours and by appt.
- Constructed grading rubric and evaluated midterm and final papers

2013 Assistant in Instruction

Biology of Coral Reefs (EEB345)

Princeton University, Bocas del Toro, Panama

- Supervised field research projects (i.e., study design, data collection, analysis & interpretation)

in field course carried out in Bocas del Toro and Isla de Coiba, Panamá

- Evaluated write-ups and assisted students in achieving defined scientific competencies
- Managed logistical challenges of a field course that took place primarily in the water

2012-2013 Instructor
Ecology and Evolutionary Biology
Senior thesis writing group
Princeton University, Princeton, NJ

- Conducted weekly meetings to guide undergraduate seniors in the development of their theses
- Designed and led activities aimed at improving student skills in scientific writing
- Helped in data analysis and the construction of each thesis chapter
- Gave individual feedback over email and in one on one meetings

2009-2010 Assistant in Instruction
Evolutionary Biology (EEB 309)
Princeton University, Princeton NJ

- Taught students how to read a scientific paper, and extract the key points
- Evaluated write-ups and assisted students in achieving defined scientific competencies
- Gave individual feedback during office hours

SUPERVISION AND MENTORING OF GRADUATE CANDIDATES

2021-present Doctoral thesis supervisor
Rod Suepaul, Department of Environmental Biology, University of the West Indies, Trinidad and Tobago
Thesis: Currently untitled study of Chagas disease in Trinidad

2017-present Doctoral thesis committee member
Kaylee Arnold, PhD Student, Interdisciplinary Disease Ecology Across Scales (IDEAS), Odum School of Ecology**,** University of Georgia
Thesis*:* Rhodnius pallescens *microbiome in* T. cruzi-*infected bugs across different landscapes in Panama.*

2015 Summer research project supervisor
Hannelore MacDonald, MPH student, Mailman School of Public Health, Columbia University
Project: "*The role of non-human reservoirs in sustaining* T. cruzi *transmission across different transmission scenarios.*" Masters summer research project for MPH program.

SUPERVISION AND MENTORING OF UNDERGRADUATE SENIOR THESES

2012-2018 **Princeton University, Department of Ecology & Evolutionary Biology (EEB)**
Francisca Bermudez (2017-18)
Thesis: *Applying Next-Generation Sequencing to the Genetics and Ecology of* Rhodnius pallescens*, A Vector of Chagas Disease*
Alexandra Hylton (Eakes) (2016-17)
Thesis: "*Chagas disease ecology on the islands of Trinidad and Grenada: distribution, blood meal*

sources and Trypanosoma cruzi *infection prevalence in triatomine bugs*"*
*Cannon Prize for best presentation of a senior Thesis. Work published in Hylton, et al., 2020 (see publication list above).

Adriana Stephenson (2016-17)
Thesis: "Trypanosoma cruzi *infection in non-human hosts: state of the art after 106 years of research*"

Kathleen Mulligan, (2016-17)
Thesis: "*Effect of temperature and local variation in mosquito vectors on the transmissibility of Dengue fever in Machala, Ecuador*"

Anchal Padukone, (2015-16)
Thesis: "*Relationships between Microhabitat Characteristics and the Abundance of a Chagas Disease Vector,* Rhodnius pallescens*, in Central Panama*."

Thomas Yetter (2015-16)
Thesis: "*Attraction of Chagas disease vector* Rhodnius pallescens *to artificial light sources.*"

Roberta Hutton (2015-16)
Thesis: "*Vector control and health care-seeking behavior: Chagas disease and dengue fever in Medellín, Colombia*"

Ryan Elliott (2014-15)
Thesis: "*Triatomine and Trypanosomes: Fitness Impacts of* Trypanosoma cruzi *and* Trypanosoma rangeli *Mono- and Co-infections in the Triatomine Vector* Rhodnius prolixus*"**
*Department prize for best laboratory thesis poster; a portion of this work is published in Peterson et al 2016, Parasitology, with Mr. Elliott as co-author.

Lauren Castro (2012-13)
Thesis: "*Flight performance and trypanosome infection of the Chagas disease vector* Rhodnius Pallescens*: implications for the spatio-temporal spread of* Trypanosoma cruzi *in rural landscapes*."
Work published in Castro et al (in publication list above).

Research Statement

Jennifer K. Peterson

Introduction

I am a vector ecologist interested in multi-scale complex systems. I carry out investigations of vector-borne diseases across ecological levels of organization; my work includes molecular studies of within-host phenomena, experimental studies with colony-reared bugs, local and international field data collection, and mathematical modeling. My training is in Chagas disease, which consists of triatomine bugs, mammal hosts, and the protozoan parasite *Trypanosoma cruzi.* My current projects include a wide-scale study of Chagas disease in Trinidad and Tobago, and I have a network of collaborators around the US, Latin America, and the Caribbean. If I were to come to the University of Delaware, I would continue my current projects while also forming a network of colleagues and community stakeholders to investigate local vector-borne disease systems including emerging species such as *Aedes albopictus*, established species like *Triatoma sanguisuga,* and recently introduced species such as the Asian Longhorned tick.

Student involvement

Student collaboration has been a key part of my research for the past ten years beginning in 2012 when I brought an undergraduate student with me on a research trip to Panama, where we measured triatomine bug flight capacity by attaching the bugs to a flight mill in the basement of the Gorgas Institute of Health. The work was published in the *Journal of Medical Entomology* a few years later (Castro et al. 2014), and I have since been fortunate enough to have undergraduates carry out research with me in Colombia, Panama, Peru, and Trinidad and Tobago. I have also mentored molecular and computational projects that did not require travel. I enjoy writing with students, and teaching them about peer-review, which has resulted in five other publications written with students, with another in preparation. At University of Delaware, I would continue to work with students on local and international projects; the ubiquitous nature of vectors presents abundant opportunities for investigation no matter the location, thus providing a sustainable source for student inquiry. I would also form collaborations with other faculty members with shared research interests to meet the needs of more students.

Future directions

As a faculty member at the University of Delaware, I would continue working on my current projects in the field while also pursuing new, local projects in collaboration with students and faculty. I would begin by applying for seed grants and early career research grants. Questions I am interested in pursuing revolve around identifying environmental drivers and other patterns related to vector-borne disease maintenance, persistence, and/or change (i.e., dynamics). Such factors include within-host phenomena (with the vector being the host of interest), parasite-host interactions, land use types, human practices, and climate change-related events such as extreme weather. Over time, I aim to use data collected to inform public health and infectious disease policy decisions as well as identify strategies both to mitigate current diseases and prepare for emerging ones.

Castro, L. A. [+^], **J. K. Peterson^**, A. Saldaña, M. Y. Perea, J. E. Calzada, V. Pineda, A. P. Dobson, and N. L. Gottdenker. 2014. Flight behavior and performance of *Rhodnius pallescens* (Hemiptera: Reduviidae) on a tethered flight mill. Journal of medical entomology. 51: 1010–1018.

^CO-FIRST AUTHOR [+] STUDENT MENTORED BY JK PETERSON

Teaching Statement

Jennifer K. Peterson

When I was a student, I loved learning, but it was a struggle for me to pay attention in class. To do well, I had to go home and teach myself everything again. I don't mean to say that I only had 'bad' teachers, but it felt like I was rarely *taught*; I was more often talked at. Now as a teacher myself, I design assignments by first asking myself, how would I be able to learn this concept? What would make this memorable in a meaningful way? How can I deliver this information to all types of learners? Reflecting on my own struggles as a student allows me to shift away from lessons centered on talking at students and lean more toward lesson plans that allow students to learn actively, reflect back, and share with each other.

I am firmly in the 'teach a person to fish' camp in that I am a proponent of process and problem solving over memorize and regurgitate. In subject matters where periodic tests are necessary (e.g., statistics) I use open book tests that require application of concepts. I use these tests to monitor student progress and make sure that no one is left behind. When presenting new material, I am at the helm as students attain a preliminary understanding of a new concept. As students become more comfortable with the material, my role changes from 'expert in the room' to guide, moderator, editor, and sometimes cheerleader

The rhythm of my classes is, (1) lay conceptual groundwork for what we're learning that day; (2) do an activity to apply the concept to a problem; (3) reflect and share about some aspect of the activity; and then at home, (4) do homework to strengthen their understanding. My lectures are short and involve student participation and conversation. I encourage students to ask questions during class, after class, during my office hours, over email, or on the phone if necessary. When applying the concepts covered in lecture to a problem, I use a combination of group projects, examinations of the literature, games, guest lecturers, or field trips. I gauge if learning objectives were achieved by observing student response in class, homework performance, and occasionally using a formative assessment at the end of class. When possible, I incorporate field experiences to give more context to class material. For example, to teach urban field ecology and data analysis methods, I partnered up with a local wildlife network and took students to a nearby park, where we helped a technician set up a camera trap that was one in a series of traps on a rural-urban gradient throughout the Portland-metro area. The students crafted a research question to be answered with data from the camera trap photos. When the photos came in later in the term, students recorded the animals seen in each photo, creating their own data set. From there, we learned how to use Excel to organize and analyze the data, including a basic biostatistical analysis, and then they answered their research question, carried out one statistical test, and provided one visual. The project culminated in a lab report at the end of the semester, and many of the students reported that it was their favorite part of the class because they got to learn by doing.

I know how it feels to start a new class and hope it's a good one. I never want to dash that hope for my students. There is no such thing as the perfect lesson or the perfect teacher, but still, I rework class plans again and again until they are just right, and then I start over with the next group. What does not change is my commitment to doing everything in my power to ensure that each student gets the education they deserve.

Diversity, Equity and Inclusion Statement

Jennifer K. Peterson

In my work, I consider diversity, equity, and inclusion to be an ongoing conversation that begins on day one. As a part of this conversation, I am honest about biases that I have experienced as a female and a working parent of a young child, as well as the privileges I have that I did not earn. I have many learning moments, such as when searching for visuals of Black, Indigenous, and people of color (BIPOC) individuals doing ecology to include in a lecture, I discovered that Google had almost no images of female, BIPOC scientists. If the scientist was female, she was always white, like me. This was a privilege I did not earn and had never thought of as a privilege until that moment. These moments can result in a cascade of realizations, and in this case, and in this case my eyes were open to the subtle, pervasive biases that are woven into everything. This lesson was confirmed a few days later when a black, female student in my class told me that in high school, one of her assignments was to find pictures online to represent her family. She ended up having to draw them instead, because there were not any pictures that looked like her family. It made me wonder, how many other stories are there like this, of assignments that were not inclusive of all students, designed by some oblivious, perhaps well-meaning educator? I also wondered, when had I not been inclusive as an educator? I now use this experience to screen assignments and activities, to ask myself- will this include everyone?

As the partner of a person born in a country that falls under the 'latino' category, I have learned that places or people that feel safe to me do not feel safe to everyone else. It sounds foolish when stated, but I used to gauge my own comfort as the measure of everyone's comfort. Now I realize that to make my workspaces (classroom, lab, research areas) safe and inclusive spaces, I must do more than declare them safe spaces. The question must be addressed and it is never something that is 'achieved' and then filed away as finished. In my classroom, on the first day of class, I pass out notecards upon which I request that students write their name, major, year, and anything they think I should know about them. The notecards give students a chance to privately and quietly communicate personal circumstances, struggles, or disabilities that may hinder their ability to feel safe, confident, and successful in my class. I check in with students about it one on one periodically throughout the term. In other settings, inclusivity can be more nuanced, and may be a conversation or it may be something totally different. For example, when doing research abroad, I have discovered that one way to enhance inclusivity is to reduce the language barrier for non-native English speakers. So, I provide English language lessons and manuscript editing to all collaborators and colleagues, both when I am working with them in person, and also remotely. I work to eliminate language barriers when carrying out peer review and other service activities as well, in that I focus on the quality of the work rather than the written English.

In sum, I approach research, teaching, and service being fully cognizant that academia is a system with deeply rooted biases towards certain ethnicities, skin tones, and genders, in addition to being based in ableism and not always welcoming to neurodiverse individuals. Lack of representation, both from the bottom up (childhood educators, role models) and from the top down (leaders and funders), is a problem that we as academics and educators have the opportunity to change, since we deliver higher education to current and future parents, teachers, researchers, and leaders. By making it a conversation, we can help to nurture the habit of recognizing, calling out, and when possible, eliminating bias. I hope that by seizing every opportunity to do this, big and small, I enhance diversity, equity, and inclusion in my work and beyond.