Ann Thomas Tate, Ph.D. December 2025

Position: Associate Professor of Biological Sciences, Vanderbilt University

Address: Department of Biological Sciences, Vanderbilt University
Medical Research Building III
465 21st Ave. South
Nashville, TN 37212 USA
Phone: (615) 936-4494
Email: a.tate@vanderbilt.edu
Website: my.vanderbilt.edu/tatelab

Professional Appointment

Vanderbilt University, Nashville, TN
Department of Biological Sciences
Department of Pathology, Microbiology, and Immunology (Secondary)

2024 – present Associate Professor
2017 – 2024 Assistant Professor

2014 – 2016 **University of Houston**, Houston, TX
Department of Biology and Biochemistry
USDA NIFA Postdoctoral Fellow and Research Assistant Professor
Mentor: Dr. Tim Cooper

Education

2009 – 2014 **Princeton University**, Princeton, NJ
Ph.D., Ecology and Evolutionary Biology (Awarded Oct. 2014)
Dissertation: *Invertebrate immune priming: An integration of mechanism, life history, and disease dynamics*
Advisor: Dr. Andrea Graham

2005 – 2009 **Rice University**, Houston, TX
B.S., *magna cum laude*, Ecology and Evolutionary Biology & Biochemistry and Cell Biology
Thesis: *Challenges of metamorphosis in infected invertebrate hosts*
Advisor: Dr. Volker Rudolf

2007 – 2008 **University of Texas – Houston Medical School**
Department of Pathology and Laboratory Medicine
Undergraduate Research Fellow
Advisor: Dr. Jeffrey Actor

Selected Honors and Fellowships

2021 - 2023 **SC Family Dean's Faculty Fellowship** in Biological Sciences, Vanderbilt University

2020 - 2022 **Sloan Research Fellowship** in Computational and Evolutionary Molecular Biology, Alfred P. Sloan Foundation

Research

Publications

*****indicates corresponding author [1]Maiden name [2]Undergraduate co-author

Preprinted Manuscripts Under Evaluation or in Post-Review Revision

41. Martin, Reese A., Savage, A.E., and **Tate, A.T.*.** 2025. The evolution of investment in innate-like and diversified T cell receptors across development. BioRxiv. In revision.

40. Asgari, Danial, and **Tate, A.T**.* Positioning of negative feedback loops within immune signaling pathways influences host fitness through noise in AMP expression. BioRxiv. In revision.

39. Birnbaum, S., Schulz, N., Garrett, D., and **Tate, A.T.***. 2022. The experimental evolution of resistance to two distinct pesticide classes reveals context-dependent costs, benefits, and mechanisms. BioRxiv 9/2/21. DOI: https://doi.org/10.1101/2021.09.03.458899.

38. Birnbaum, S., Schulz, N., and **Tate, A.T.***. 2022. Interactions among evolved pesticide resistance and pesticide exposure influence immunity against pathogens. BioRxiv. DOI: https://doi.org/10.1101/2022.02.04.479151.

Published Peer-Reviewed Manuscripts

37. Martin, R.A. and **Tate, A.T.*** 2025. Pleiotropy increases with gene age in six model multicellular eukaryotes. *Evolution Letters.* 9(5):589-597.

36. Asgari, D. and **Tate, A.T.*** 2025. How the structure of signaling regulation evolves: Insights from an evolutionary model. *Molecular Biology and Evolution.* 42(5):msaf104.

35. Schulz, N.K.E, Asgari, D., Liu, S., Birnbaum, S.S.L, Williams, A.M., Prakash, A., and **Tate, A.T.***. 2025. Resources modulate developmental shifts but not infection tolerance upon coinfection in an insect system. *Molecular Ecology*. 34(20):e17726.

34. Barr, J., Martin, L., **Tate, A.T**., and Hillyer, J. 2024. Warmer environmental temperature accelerates aging in mosquitoes, decreasing longevity and worsening infection outcomes. *Immunity and Ageing*. 21:61.

33. Martin, R.A. and **Tate, A.T.***. 2024. Pleiotropy alleviates the fitness costs associated with resource allocation trade-offs in immune signaling networks. *Proceedings of the Royal Society B.* 291: 20240446

32. Critchlow, J., Prakash, A., Zhong, K.Y[2]., **Tate, A.T.*** 2024. Mapping the functional form of the trade-off between infection resistance and reproductive fitness under dysregulated immune signaling. *PLoS Pathogens. 20(2): e1012049*

31. Schulz, N.K.E.*, Stewart, C[2]. and **Tate, A.T.***. 2023. The impact of infection dose on reproductive investment and offspring quality in flour beetles. *Ecological Entomology*. 48(6): 714-724.

30. Williams, A., Ngo, Thi Minh, Figueroa, V. [2] and **Tate, A.T.*** 2023. The effect of developmental pleiotropy on the evolution of insect immune genes. *Genome Biology and Evolution*. 15(3): evad044.

29. Martin, R. and **Tate, A.T.***. 2023. The coevolution of immune signaling networks under pleiotropic constraint. *PLoS Computational Biology*. 19(4): e1010445.

28. Chora, F.A., Goncalves, J., Marques, S., Fernandez-Ruiz, D., Lima, P., Marreiros, I.M., Ruivo, P., Carvalho, T., Serre, K., Heath, W.R., **Tate, A.T.**, Mota, M.M. 2023. Interplay between liver and blood stages of Plasmodium infection dictates malaria severity via γδ T cells and IL-17-promoted stress erythropoiesis. *Immunity*. 56(3):592-605.

27. **Tate, A.T.*** and Van Cleve, J. 2022. Bet-hedging in innate and adaptive immune systems. *Evolution, Medicine, and Public Health*. eoac021.

26. Lazzaro, B. and **Tate, A.T**. 2022. Balancing sensitivity, risk, and immunopathology in immune regulation. *Current Opinion in Insect Science*. 50:100874.

25. **Tate, A.T.*** and Schulz, Nora. 2022. The within-host ecology of insects and their parasites: Integrating experiments and models. *Current Opinion in Insect Science.* 49: 37-41.

24. Rovenolt, F. H.[2] and **Tate, A.T.*.** 2022. The impact of coinfection dynamics on host competition and coexistence. *The American Naturalist*. 199(1):91-107.

23. **Tate, A.T.*,** Perry, A. [2], and Jent, D.G. 2021. Larvae and adults exhibit contrasting patterns of immune gene expression and infection resistance in wild flour beetle populations. *Ecological Entomology*. 46(5):1230-1235.

22. Gitschlag, B.L., **Tate, A.T.** & Patel, M.R. 2020. Nutrient status shapes selfish mitochondrial genome dynamics across different levels of selection. Accepted at *eLife* 8/17/20. Biorxiv DOI:10.1101/2020.01.30.927202.

21. Greischar, M.A.,*, Alexander, H.K., Bashey, F., Bento, A.I., Bhattacharya, A., Bushman, M., Childs, L.M., Daversa, D.R., Day, T., Faust, C.L., Gallagher, M.E., Gandon, S., Glidden, C.K., Halliday, F.W., Hanley, K.A., Kamiya, T.,, Read, A.F., Schwabl, P., Sweeny, A.R., **Tate, A.T.**, Thompson, R.N., Wale, N., Wearing, H.J., Yeh, P., and Mideo, N. 2020. Evolutionary consequences of feedbacks between within-host competition and disease control. *Evolution, Medicine, & Public Health*. 1(2020):30-34.

20. Jent, D.G., Perry, A[2]., Critchlow, J.T., **Tate, A.T.*** 2019. Natural variation in the contribution of microbial density to inducible immune dynamics. *Molecular Ecology*. 28(24): 5360-5372. DOI: 10.1111/mec.15293

19. Critchlow, J., Norris, A., **Tate, A.T.*** 2019. The legacy of larval infection on immunological dynamics over metamorphosis. *Philosophical Transactions of the Royal Society B.* 374(1783): 20190066. DOI: 10.1098/rstb.2019.0066.

18. **Tate, A.T.*** The role of multiple infections on immunological variation in wild populations. 2019. *mSystems*. 4(3): e00099-19.

17. Shaw, D.K.*, **Tate, A.T.*,** Schneider, D.S., Levashina, E.A., Kagan, J.C., Pal, U., Fikrig, E., Pedra, J.H.F*. 2018. Vector immunity and evolutionary ecology: The Harmonious Dissonance. *Trends in Immunology*. 39(11): 862-873.

16. Graham, A.L., and **Tate, A.T**. 2017. Insight Article: Are we immune by chance? *eLife* 6, e32783.

15. Metcalf, C.J.E., **Tate, A.T.**, Graham, A.L. 2017. Demographically framing tradeoffs between sensitivity and specificity illuminates selection on immunity. *Nature Ecology and Evolution*, 1: 1766-1772.

14. **Tate, A.T.*** and Graham, A.L. 2017. Dissecting the contributions of time and microbe density to variation in immune gene expression. *Proceedings of the Royal Society B*. 284(1859): 20170727.

13. Luu, H.[2], and **Tate, A.T.*** 2017. Recovery and immune priming modulate the evolutionary trajectory of infection-induced reproductive strategies. *Journal of Evolutionary Biology*. 30(9): 1748-1762.

12. **Tate, A.T.,*** Andolfatto, P., Demuth, J., and Graham, A.L. 2017. The within-host dynamics of trans-generational immune priming in flour beetles. *Molecular Ecology*. 26(14): 3794–3807.

11. Kennedy[2], M., Graham, A.L, and **Tate, A.T.*** 2017. Relative contributions of environmental and maternal factors to trans-generational immune priming in *T. castaneum*. *Ecological Entomology*. 42(1):100-104.

10. **Tate, A.T.*** 2017**.** A general model for the influence of immune priming on disease prevalence. *Oikos*. 126(3): 350-60

9. **Tate, A.T.*** 2016**.** The interaction of immune priming with different modes of disease transmission. *Frontiers in Microbiology*. 7:1102.

8. Schneider, D.S. and **Tate, A.T.** 2016. Innate Immune Memory: Activation of Macrophage Killing Ability by Developmental Duties. *Current Biology*. 26(12), R503-505.

7. Louie, A., Song, K.H., Hotson, A., **Tate, A.T**., and Schneider, D.S. 2016. How many parameters does it take to describe disease tolerance? *PLoS Biology* 14(4), e1002435.

6. Torres, B.Y., Oliveira, J.H.M., **Tate, A.T.**, Rath, P. Cumnock, K, and Schneider, D.S. 2016. Tracking resilience to infections by mapping disease space. *PLoS Biology* 14(4), e1002436.

5. **Tate, A.T**.***** and Graham, A.L. 2015. Dynamic patterns of parasitism and immunity across host development influence optimal strategies of resource allocation. *The American Naturalist*. 186(4): 495-512.

4. **Tate, A.T**.***** and Graham, A.L. 2015. Trans-generational priming of resistance in wild flour beetles reflects the primed phenotypes of laboratory populations and is inhibited by co-infection with a common parasite. *Functional Ecology*. 29(8), 1059-1069

3. **Tate, A.T**.***** and Rudolf, V.H.W. 2012. Impact of life stage - specific immune priming on invertebrate disease dynamics. *Oikos* 121(7): 1083-1092.

2. **Thomas, A.M**.[1] and Rudolf, V.H.W. 2010. Challenges of metamorphosis in invertebrate hosts: Maintaining parasite resistance across life-history stages. *Ecological Entomology*. 35(2): 200-205.

1. Abbott, A.N., Guidry, T.V., Welsh, K.J., **Thomas, A.M**[1]., Kling, M.A., Hunter, R.L., Actor, J.K. 2009.11-Hydroxysteroid Dehydrogenases are regulated during the pulmonary granulomatous response to the Mycobacterial glycolipid Trehalose-6,6-dimycolate. *Neuroimmunomodulation*. 16(3):147-154.

Extramural Grants awarded

2025 – 2030 **NIH NIGMS R35 MIRA (renewal)** **$2,178,185**
Award number 2R35GM138007
Title: *The influence of coevolutionary feedbacks on the origins and maintenance of genetic pleiotropy*
Role: Principal Investigator

2025 – 2029 **NSF DEB** **$997,860**
Award number 2508355
Title: *Evolutionary adaptation and constraint in the decoupling of immune responses across life stages*
Role: Principal Investigator

2023 – 2027 **NSF Integrative Biology** **$274,769**
Award number 2316467
Title: *IntBIO: The evolution of immune investment strategies across amphibian ontogeny*
Role: Co-PI

2022 – 2024 **NIH NIAID R21** **$449,379**
Award number R21AI170977
Title: *The temporal dynamics of translation efficiency during an innate immune response*
Role: Principal Investigator

2020 – 2025 **NIH NIGMS R35 MIRA** **$1,970,444**
Award number 1R35GM138007
Title: *The coevolutionary dynamics of pleiotropic genetic architecture*
Role: Principal Investigator

2020 – 2022 **Alfred P. Sloan Research Fellowship** **$75,000**
Computational and Evolutionary Molecular Biology
Role: Fellow/Principal Investigator

2018 – 2022 **NSF DEB/IOS** **$648,477**
Award number 1753982
Title: *The impact of co-infection on host and parasite population dynamics*
Role: Principal Investigator

2014 – 2016 **USDA NIFA Postdoctoral Fellowship (PI)**
Award number 2014-67012-22278
Title: *The impact of stored grain pest immunological dynamics on the evolution of pathogen virulence*

2012 – 2014 **USDA NIFA Pre-doctoral Fellowship (PI)**
Award number 2012-67011-19893
Title*: Elucidating the mechanistic basis and population consequences of immune priming in Tribolium beetles*

Trainee Extramural Grants and Fellowships Awarded

2024 – 2027 **NSF Postdoctoral Research Fellowship (Biology)** **$240,000**
Allyson Ray (PD)
Ann Tate (primary mentor)

2021 – 2023 **NSF Postdoctoral Research Fellowship (Biology)** **$138,000**
Jessica Hernandez (PD)
Ann Tate (primary mentor)

2019 – 2021 **USDA NIFA Postdoctoral Fellowship** **$165,000**
Stephanie Birnbaum (PD)
Ann Tate (primary mentor)

2019 – 2021 **USDA NIFA Postdoctoral Fellowship** **$165,000**
Justin Buchanan (PD)
Ann Tate (primary mentor)

Invited seminars (last 5 years)

2027 Upcoming invited seminar. *Immune system evolution in a variable world*
Biology Department, Florida State University.

2026 Upcoming invited seminar. *Immune system evolution in a variable world*
Dept. of Microbiology and Immunology, Stanford University.

2026 Upcoming invited seminar: *Immune system evolution in a variable world.*
Department of Ecology and Evolutionary Biology, Princeton University.

2024 Invited seminar: *Immune system optimization in a variable world.*
Dept. of Biology, University of Virginia.

2024 Invited seminar: *Immune system optimization in a variable world.*
Dept. of Ecology and Evolution, University of Central Florida.

2023 Invited seminar: *Immune system optimization in a variable world.*
Dept. of Ecology and Evolution, University of Michigan.

2023 Invited seminar: *Immune system optimization in a variable world.*

Ecology and Evolution series, CNRS, Montpellier, France.

2023 Invited seminar: *Immune system optimization in a variable world.*
Cramer seminar series, Dept. Biological Sciences, Dartmouth University.

2023 Invited seminar: *Immune system optimization in a variable world.*
Quantitative Systems Biology series (QSBC), Vanderbilt University.

2022 Invited seminar: *Immune system optimization in a variable world.*
Department of Biological Sciences, University of Toronto-Scarsborough.

2022 Invited seminar: *Immune system optimization in a variable world.*
Department of Genetics, Rutgers University.

2022 Invited Seminar: *Immune system optimization in a variable world.*
PBEE seminar, Dept. of Biology. Emory University.

2021 Invited Seminar: *Immune system optimization in a variable world.*
Gertrude Flora Ribble Endowed Seminar, Dept. of Biology. University of Kentucky.

2021 Invited Seminar: *Immune system optimization in a variable world.*
Ecology and Evolutionary Biology Dept., Cornell University.

2021 Invited Seminar: *Immune system optimization in a variable world.*
Integrated Evolutionary Biology Dept., University of Münster. Münster, Germany.

2021 Invited Seminar: *Immune system optimization in a variable world.*
Biology Dept., Freie Universitat Berlin. Berlin, Germany.

2021 Invited Seminar (virtual): *Immune system optimization in a variable world.*
Biology Department, Bucknell University.

2021 Invited Seminar (virtual): *Immune system optimization in a variable world.*
Biology Department, University of Memphis.

2020 Invited Seminar (virtual): *Immune system optimization in a variable world.*
Carnegie Institution for Science. Baltimore, MD.

2020 Invited Seminar (virtual): *Immune system optimization in a variable world.*
Max Planck Institute for Infection Biology – Berlin.

2020 Invited Seminar (virtual): *Immune system optimization in a variable world.*
Department of Biology, University of Florida.

Selected published abstracts and invited conference presentations (last 5 years)

2026 Upcoming Invited Speaker: Jacques Monod Conference on Insect Immunity. Roscoff, France

2026 Upcoming Invited Plenary Lecture: Royal Entomological Society. April 2026. UK.

2025 Invited Keynote speaker: Evolutionary Biochemistry of Insect Antimicrobial Peptides (SMBE satellite). Houston, TX. (declined due to schedule conflict)

2025 Selected Talk: The impact of within-host dynamics on competition outcomes during coinfection.
Ecological Immunology Workshop, Werbellinsee, Germany.

2024 Symposium Speaker: Evolution-ESEB Joint Conference, Montreal, Canada.

2024 Invited key participant in coinfection workshop, Montpellier, France (declined due to maternity leave)

2023 Invited Plenary Lecture: American Society for Rickettsiology. Snowbird, Utah.
Support: All expenses

2023 Contributed presentation: Society for Molecular Biology and Evolution, Ferrara, Italy.

2023 Contributed presentation: Jacques Monod Conference on Host-Parasite Co-evolution, Roscoff, France.

2022 Invited Speaker: *Ecological interactions among coinfecting parasites shape within-host and between-host competition outcomes*. Gordon Research Conference: Unifying ecology across scales. Southern New Hampshire University, NH.

2022 Selected Talk: *The evolution and maintenance of developmental pleiotropy in insect immune systems*. Ecological Immunology Workshop, Blossin Germany.

2022 Contributed Talk: *The experimental evolution of pesticide resistance trades off with insect immune responses*. Evolution. Cleveland, Ohio.

2022 Selected Talk: *Ecological interactions among coinfecting parasites shape within-host and between-host competition outcomes*. Ecology and Evolution of Infectious Diseases Meeting. Atlanta, GA, USA

2020 Symposium Speaker: *Reciprocal interactions between nutrition and immunity influence coinfection dynamics in flour beetles*. International Congress of Entomology. Helsinki, Finland. (canceled due to COVID)

2020 Symposium Speaker: *Evolutionary adaptation and constraint shapes variation in flour beetle (Tribolium spp) immune responses to their natural parasites*. Entomological Society of America Meeting (virtual).

2020 Invited Speaker: *The evolutionary ecology of coinfection in flour beetles*. Insect-Pathogen Workshop, University of Exeter, UK (canceled due to COVID).

Teaching

Courses Taught (Vanderbilt)

2025 Fall BSCI 3861: Directed Undergraduate Research
BSCI 7390: Advanced techniques in Biological Sciences

2024 Fall BSCI 4268/5268: The Ecology and Evolution of Infectious Diseases

2024 Spring BSCI 3226/5226: Immunology

2023 Fall BSCI 3860/5860: Special Topics: The Ecology and Evolution of Infectious Diseases
BSCI 3850: Independent Reading

2023 Spring BSCI 3226/5226: Immunology
BSCI 3850: Independent Reading

2022 Fall BSCI 3860/5860: Special Topics: The Ecology and Evolution of Infectious Diseases

2021 Spring BSCI 3965: Undergraduate Seminar: The Ecology and Evolution of Infectious Diseases

2020 Fall BSCI 3226/5226: Immunology
BSCI 3850: Independent Reading

2020 Spring Undergraduate Seminar: The Ecology and Evolution of Infectious Diseases (BSCI 3965)
Guest Lecture: Journey into a beetle and the evolution of virulence (MHI 300)

2019 Fall Immunology (BSCI 3226/5226)

2019 Spring Undergraduate Seminar: The Ecology and Evolution of Infectious Diseases (BSCI 3965)
Independent Reading (BSCI 3850)
Guest Lecture: Journey into a beetle and the evolution of virulence (MHI 300)

2018 Fall Immunology (BSCI 3226/5226)
Independent Reading (BSCI 3850)

2018 Spring Undergraduate Seminar: The Ecology and Evolution of Infectious Diseases (BSCI 3965)

2017 Fall Graduate Seminar in Biological Sciences (BSCI 6320)

Mentoring

Postdoctoral Fellows

2026 – present: Bengi Subasi Greiner
2024 – 2025: Reese Martin
2023 – present: Danial Asgari
2022 – present: Allison Ray (NSF PRFB fellow)
2022 – 2025: Arun Prakash
2021 – 2023: Alissa Williams
2021 – 2021: Jessica Hernandez (NSF PRFB fellow)
2019 – 2022: Stephanie Birnbaum (USDA NIFA fellow)
2019 – 2021: Nora Schulz
2019 – 2021: Justin Buchanan (USDA NIFA fellow)

Ph.D. students

2025 – present: Fernando Barahona (BioSci)
2024 – present: Edith Simpson (BioSci)
2023 – present: Rayshaun Petitt (BioSci)
2022 – present: Louise Perrier (BioSci; Ph.D. candidate 2023)
2021 – 2024: Reese Martin (QCB; Ph.D. candidate 2022, defended 2024)
2017 – 2023: Justin Critchlow (BioSci; Ph.D. candidate 2019, defended 2023)

Masters students

2021 – 2024: Md Sadequr Rahman (BioSci)
2019 – 2021: Destane Garrett (BioSci)
2020 – 2021: Thi Ngo (BioSci)
2019 – 2020: William Galardi (MBS)

Undergraduate research students (Vanderbilt: 15)

2026-present Megan White
2024-present Sowmya Senthilkumar (VUSRP, NSC)
2024-2025 Phoebe Lin (SyBBURE)
2023-2024 Jakob Heiser (VUSRP)
2022-2023 Veronica Figueroa
2021-2022 Anthony Hassell (Fisk student; summer REU)
2020-present Katherine Zhong (Honors Thesis; Littlejohn Scholar; VUSRP)
2020-present Carly Stewart (Honors Thesis)

2018-2021	Ana Torres (Honors Thesis, VUSRP)
2019-2020	Anna Borchers (REU)
2017–2020	Yongjia "James" Deng (VUSRP)
2017–2020	Faith Rovenolt (Honors Thesis, VUSRP)
2017–2020	Abby Perry (McMinn Scholar)
2017–2018	Kelsey Auman
2017, 2018	Emma Blackford (summer research only)

Other mentees

2022-present	Layne P. (High School student, SSMV)
2017	Elizabeth Greer (High School Teacher, summer research)

Service

Service to the Department and University

2025-present	Director of Graduate Studies, Department of Biological Sciences
2025-present	T32 Training Grant Advisor, *Computational Evolutionary Approaches to Disease* (CoEvoD)
2025-present	Internal Awards Review Committee (Office of the Vice Provost for Research and Innovation)
2020-present	Associate Director of Graduate Studies, Department of Biological Sciences
2020-present	Vanderbilt Institute for Infection, Immunity, and Inflammation Diversity and Inclusion Committee
2020-2022	Provost's Sexual Misconduct Prevention Committee (PSMPC)
2019-present	Departmental Graduate Admissions Committee
2019-present	DGS Advisory Committee
2018-2019	Departmental faculty search committee (Microbial Biology)
2017-2019	Departmental faculty seminar committee (with Nicole Creanza)
2017-2018	Departmental faculty search committee (Microbiome)
2017-present	Faculty mentor, Student Chapter of the American Society for Microbiology
2017-present	Departmental graduate student recruitment – one-on-one interviews and dinner with candidates
2017-present	IGP/QCB graduate student recruitment – one-on-one interviews and lunches/dinners with candidates
2017-present	PhD Committees (17 as member, 1 as chair, not including my own students)
2021-present	External Ph.D. committees/external examiner (6): Vandana Gupta (University of Montpellier, France), *Ryan Imrie* (University of Exeter, U.K.), Austin Calhoun (Illinois State University, USA), Lauren Holian (University of South Carolina, USA), Srijan Seal (Ashoka University, India), Brit Johnson (Cornell)
2021-present	Faculty reader, MHI scientific writing course
2017-present	Undergraduate Honors Thesis Committees (7, + 4 of my own students)

2017-present Undergraduate research co-mentor (16)

2018-present Undergraduate Advisor (14)

2018-present Faculty mentor, Student Chapter of the American Society for Microbiology

Professional Service and Activities

2021-present Editorial Board: *Philosophical Transactions of the Royal Society B* (The Royal Society)

2020-present Associate Editor: *The American Naturalist* (American Society of Naturalists)

2017-2020 Associate Editor**:** *Journal of Animal Ecology* (British Ecological Society)

2020 NSF DEB review panelist

2017-present *Ad hoc* peer review for NSF DEB and IOS proposals and international research agencies (ANR France, FWF Austria)

2018 Guest editor, *PLoS Pathogens*

2018, 2019 Faculty mentor to graduate students at annual *Ecological Society of America* meetings

Peer review referee for 27 journals including: *The American Naturalist*, *Biology Letters*, *BMC Biology, Ecology, Ecology Letters, Ecological Entomology*, *eLife, Functional Ecology, Frontiers in Microbiology, G3: Genes, Genomes, Genetics, Immunobiology, The ISME Journal, Journal of Animal Ecology*, *Journal of Experimental Biology*, *Journal of Insect Science, Methods in Ecology and Evolution, Molecular Ecology, Oikos*, *Physiological Entomology, PLoS Biology, PLoS Computational Biology, PLoS Neglected Tropical Diseases*, *PLoS Pathogens, Proceedings of the National Academy of Sciences, Proceedings of the Royal Society B, Phil. Trans. Royal Soc. B,* and *Royal Society Open Science*.

Member: Society for Molecular Biology and Evolution (SMBE), The International Society for Evolution, Medicine, and Public Health (ISEMPH), The American Society of Naturalists (ASN), The Entomological Society of America (ESA), The Ecological Society of America (ESA), The American Society for Microbiology (ASM).

Service to the Community

2019 MegaMicrobe Booth: "It's a Bug's Life." Oct. 2019. Nashville TN.

2019 TWISTER (Tennessee Women in Science, Technology, Engineering, and Research) module organizer and presenter, Adventure Science Center, Nashville, TN

2019 High School Outreach Presentation. Ravenwood High School. *Parasites: The Struggle Within.*

2018 TWISTER (Tennessee Women in Science, Technology, Engineering, and Research) module organizer and presenter, Adventure Science Center, Nashville, TN

2017 TWISTER (Tennessee Women in Science, Technology, Engineering, and Research) module organizer and presenter, Adventure Science Center, Nashville, TN

2017 Hosted Ravenwood High School teacher Elizabeth Greer in the lab to experience research (summer)