St. Paul, MN, US
+1 661 713 7358
gracevaziri@gmail.com
gracevaziri

Grace J Vaziri

Research Interests

I study the processes that govern intra-host evolution of pathogens, as well as those that influence how host organisms deal with disease and immune challenges in the wild. In particular, I am interested in both proximate and ultimate causes and consequences of immune heterogeneity, and how such heterogeneity can lead to different evolutionary outcomes for pathogens. I have worked in multiple systems including birds, mammals, fish, and amphibians. I have developed a diverse set of laboratory and analytical tools to work with many types of data, including high-throughput sequencing data, physiological and parasitological data, and automated radiotelemetery data. I have consistently been awarded funding for my research, in the form of both grants and fellowships. Providing individualized mentorship and teaching is integral to my identity as a scientist; to this end I have been instructor of record for a field-based herpetology course, and have both involved undergraduates in my research, and mentored an undergraduate conducting independent research of their own. I am looking for an opportunity to start a research group with whom I can address open questions in disease ecology by integrating field, laboratory, and simulation approaches.

Positions

Present **Postdoctoral Researcher** College of Veterinary Medicine, University of Minnesota, Twin Cities, St. Paul, MN, US, Intra-host evolution and ecology of emerging RNA viruses
Supervisor: Matthew T. Aliota

Education

2024 **PhD in Ecology and Evolution** University of Connecticut, Storrs, CT, US, Ecological and evolutionary correlates of overwintering immunity and thermal relations of the microbiota in wood frogs (*Lithobates sylvaticus*)
Supervisor: Daniel I. Bolnick

2017 **MSc Wildlife Ecology** Iowa State University, Ames, IA, US, Testing two drivers of the acute phase immune response in songbirds
Supervisor: James S. Adelman

2013 **BSc Molecular Environmental Biology** University of California, Berkeley, Berkeley, CA, US

Publications, 12 (6 first-author)

2025 **Vaziri GJ,** *Caicedo B, Dahrouge N, Ryerson W, Davenport J, Stager M, Jones K, Frost C, Seewagen C, Rittenhouse TAG, Bolnick DI., *Gut microbiomes are resilient to latitudinally variable upper thermal limit exposure of an amphibian host*, in press at *Comparative Biochemistry and Physiology Part A: Molecular and Integrative Physiology*

2024 **Vaziri GJ,** Reid NM, Rittenhouse TAG, Bolnick DI., *Winter break? The effect of overwintering on immune gene expression in wood frogs*, Comparative Biochemistry and Physiology Part D: Genomics and Proteomics, 101296

2024 Knutie SA, Webster C, **Vaziri GJ,** Albert L, Harvey J, La Rue M, Verrett T, Soldo A, Koop J, Chaves J, Wegrzyn J., *Urban living can rescue Darwin's finches from the lethal effects of invasive vampire flies*, Global Change Biology, e17145

2023 Solomon G, Love A, **Vaziri GJ**, Harvey J, Verrett T, Chernicky K, Simons S, Albert L, Chaves, J, Knutie, S., *Effect of urbanization and parasitism on the gut microbiota of Darwin's finch nestlings*, Molecular Ecology, 32(22), 6059-6069

2023 **Vaziri GJ,** Jones M, Carr H, Nuñez, CMV., *Out of the stable: Social disruption and concurrent shifts in the feral mare (Equus caballus) fecal microbiota*, Ecology and Evolution, 13(5), e10079

2023 Albert L, Rumschlaug S, Parker A, **Vaziri GJ**, Knutie SA., *Elevated nest temperature has opposing effects on host species infested with parasitic nest flies*, Oecologia, 201, 877–886

2022 Romine M, Knutie SA, Crow CM **Vaziri GJ** Chaves J, Koop JAH, and Lamichhaney S., *The genome sequence of the avian vampire fly (Philornis downsi), an invasive nest parasite of Darwin's finches in Galápagos*, G3, 12(2) jkab414

2021 Maillard F, Jusino MA, Andrews E, Moran M, **Vaziri GJ**, Banik MT, Fanin N, Trettin CC, Lindner DL, Schilling JS., *Wood-decay type and fungal guild dominance across a North American log transplant experiment*, Fungal Ecology, 59 101151

2021 **Vaziri GJ,** Jusino MA, Palmer JM, Brewer MT, Adelman, JS., *Anthelminthic drugs modulate the acute phase immune response but not the microbiota in wild Song Sparrows*, Ornithology, 1, ukaao66

2020 Addesso AM, Harvey JA, **Vaziri GJ,** Verrett TB, Albert L, Arthur C, Chernicky K, Simons SR, Chaves J, Knutie SA., *Effect of introduced parasites on the survival and microbiota of nestling cactus finches. (Geospiza scandens) in the Galápagos Islands*, Journal of Ornithology, 161, 1011-1019

2019 **Vaziri GJ,** Muñoz SA, Martinsen ES, and Adelman JS., *Gut parasite levels predict responses to simulated bacterial infection in a wild songbird*, Journal of Wildlife Diseases 55(1), 64-73

2018 **Vaziri GJ,** Johny M, Caragea PC, Adelman JS., *Social context affects thermoregulation but not activity level during avian immune response*, Behavioral Ecology 30(2), 383-392

Manuscripts in prep * denotes undergraduate author, ** denotes authors listed alphabetically

2 **Vaziri GJ,** Reid NM, Rittenhouse TAG, Bolnick DI., *Constitutive differences in immune gene expression and energy storage phenotypes co-vary with winter environment in wood frogs*, bioRxiv, https://doi.org/10.1101/2024.12.11.627228
in review at *Molecular Ecology*

1 **Bolnick DI, Fuess L, Graham A, Khan I, Steinel NC, **Vaziri GJ.,** *Evolutionary Immunology*, in review at *Annual Review of Ecology, Evolution, and Systematics*

Awards and Funding ($19,920 total)

2023	The Trainor Award - Connecticut State Museum of Natural History	$1500
2023	Herpetologists' League E.E. Williams Award	$1000
2022	The Center for Conservation and Biodiversity Fund for Research	$1427
2022	Global Amphibian and Reptile Diseases Conference Travel Award	$1000
2022	Herpetologists' League E.E. Williams Award	Honorable Mention
2022	SSAR Dean Metter Memorial Award	$1000
2022	SICB Grant in Aid of Research	$995
2021	UConn Graduate Travel Award	$1000
2021	The Ralph M. Wetzel Endowment Fund for vertebrate research	$1500
2020	UConn EEB Zoology Grant	$1128
2019	UConn EEB Zoology Grant	$500
2019	Animal Behavior Society Student Award	$1500
2019	Explorer's Club Mamont Scholars Award	$3000
2018	El Instituto Whetten Fund Travel Award	$451
2017	J. N. "Ding" Darling, Iowa Natural Heritage Foundation Scholarship	$1000
2017	Elaine Boge Scholarship	$1000
2016	Graduate and Professional Student Senate Travel Award	$180
2016	Iowa Ornithologist's Union Special Projects Grant	$989
2016	Myrle Burk Scholarship	$750

Fellowships ($107,885 total)

Fall 2023	Demi Fellowship, University of Connecticut Ecology and Evolutionary Biology	$7,885
2018-2022	Jorgensen Fellowship, University of Connecticut Graduate College	$100,000

Teaching (Instructor of Record)

Summer 2023 **Field Herpetology** University of Connecticut
Designed and led a 3-week intensive field course to teach students about field herpetology research techniques, as well as the diversity, ecology, and conservation concerns of Connecticut herpetofauna.

Teaching (Assistantships)

2019,20,22,23 **Evolutionary Medicine** University of Connecticut

2020,22 **Evolution and Human Diversity** University of Connecticut

2018,21 **General Ecology** University of Connecticut

2016,17 **Ecological Methods Laboratory** Iowa State University

2016 **Wildlife Ecology and Management** Iowa State University

Presentations and Posters

2024 **Carleton College [Invited seminar]** Winter break? The effects of overwintering, over time and space, on immune gene expression in wood frogs, **Vaziri GJ**

2022 **Global Amphibian and Reptile Diseases Conference [Poster]** University of Tennessee, Knoxville, Examining gene expression in two immunologically important tissues across the hibernation period of wood frogs *(Rana sylvatica)*. **Vaziri GJ,** Knutie SA

2022 **SICB+ [Talk]** Variation in critical thermal limits across the geographic range of larval and juvenile wood frogs. **Vaziri GJ**

2020 **University of Connecticut Department of Ecology and Evolutionary Biology Graduate Student Association Annual Symposium [Talk]** University of Connecticut, Storrs, Winter Woes and Frozen Frogs. **Vaziri GJ**

2019 **Evolutionary Medicine Course (EEB 3245) [Lecture]** University of Connecticut, Storrs, Vector Evolution. **Vaziri GJ**

2019 **American Ornithological Society Meeting [Invited symposium talk]**Anchorage, AK, Helminth infection modulates the acute phase immune response in wild song sparrows. **Vaziri GJ,** Jusino MA, Brewer MT, and Adelman, JS

2018 **Society for Integrative and Comparative Biology Annual Meeting [Talk]** San Francisco, CA, Host-Parasite Interactions and the Acute Phase Immune Response in a Songbird. **Vaziri GJ,** Adelman, JS

2017 **Ecology and Evolution of Infectious Diseases Annual Meeting [Poster]** University of California, Santa Barbara, CA, Immunomodulatory roles of helminths in a free-living wild songbird. **Vaziri GJ,** Adelman, JS

2017 **Society for Integrative and Comparative Biology Annual Meeting [Poster]**New Orleans, LA, How does social context affect the expression of fever and sickness behavior in house sparrows? **Vaziri GJ,** Adelman, JS

Professional Memberships

2021-present **Herpetologists' League**

2021-present **Society for the Study of Amphibians and Reptiles**

2021-present **Society for the Study of Evolution**

2018-2019 **Animal Behavior Society**

2018-2024 **British Ecological Society**

2018- 2019 **American Ornithological Society**

2017-present **Society for Integrative and Comparative Biology**

Work experience

Feb-Aug 2018 **Research Technician** Department of Forest and Wildlife Ecology, University of Wisconsin, Madison, Madison, WI, US
DNA extraction, PCR, library preparation for high-throughput amplicon sequencing of fungal communities, qPCR and analysis for detection of *Pseudogymnoascus destructans* in bat feces.

Apr - Aug 2014,2015 **Field Technician** College of Natural Resources, University of Idaho, Moscow, ID, US
Conduct fieldwork to capture protected Northern Idaho Ground Squirrels to investigate the demography of the squirrel populations in relation to fire-suppressed forests.

Jun - Nov 2013 **Scientific Assistant** Mosaic Associates, LLC., Pinole, CA, US
Monitor mitigation projects, prepare reports for mitigation site monitoring, design plans for invasive species management, monitor construction sites.

Leadership

2020 **Vice President** UConn EEB Grad Student Association

2019-2022 **Chair-Graduate Invited Speaker Committee** UConn EEB Grad Student Association

2016 – 2017 **Secretary** Iowa State University NREM Grad Student Association

Workshops and Working Groups

Jul. 2022 - present **Comparative system models reveal shared and unique priorities across herpetofaunal diseases** University of Tennessee, Knoxville, US, Facilitated hypothesis generation exercises with international group of experts in amphibian disease ecology. Worked with experts to organize and refine hypotheses., *Manuscript in prep*

Nov. 2019 **Host Parasite Interaction Data Analysis Workshop** University of Calgary, Calgary, Alberta CA, Four-day intensive workshop covering the following topics: Statistical methods, ethics in science, data visualization, 'omics technologies, cell biology toolkits, and modeling, with a focus on applications for host-parasite interactions.

Jan. 2019 **RNAseq Workshop** University of Connecticut Center for Genome Innovation, Storrs, CT, US, Three-day intensive workshop covering sample QC, mRNA library preparation, qPCR and Qubit quantitation, Illumina sequencing (in addition to a broad overview of current NGS technologies) and high level bioinformatics/run performance analysis.

Reviewing Services

Journals reviewed for: Ornithology, Ecology and Evolution, Journal of Avian Biology, Parasitology, Scientific Reports, Biology Letters

Miscellaneous Skills

Computational CLI, microbiome analysis, RNAseq analysis, R (proficient), viral metagenomics

Field Mist-netting, bird-banding, PIT tagging, ear-tagging, VIE tagging, automated radiotelemetry, proficiency handling small mammals, birds, amphibians, and fish

Lab BSL3 lab authorized, RNA and DNA isolation, qPCR, Illumina and Oxford Nanopore HTS library preparation, gel electrophoresis

References

1. Matthew T. Aliota, Associate Professor – University of Minnesota mtaliota@umn.edu
2. Daniel I. Bolnick, Professor – University of Connecticut daniel.bolnick@uconn.edu
3. James S. Adelman, Associate Professor – University of Memphis Jim.Adelman@memphis.edu
4. Michelle A. Jusino, Research Biologist – Northern Research Station, USDA Forest Service michelle.jusino@usda.gov