

Matthew Heilbronn

mattheilbronn1737@gmail.com

Curriculum Vitae

Education

New Mexico State University Expected 2028
MS Biology

Royal Veterinary College/London School of Hygiene and Tropical Medicine Expected 2027
MSc Veterinary Epidemiology

University of Vermont 2023
BS Microbiology

Minors: Wildlife biology and Zoology

- Distinguished Undergraduate Research (DUR) Thesis
Spillover of Malaria Parasites into Invasive Bird Species

Research Experience

2026

Masters Project, NMSU. New Mexico Tick-borne Infections Consortium (NM-TIC). Determine the prevalence of *Rickettsia rickettsii* and *R. parkeri* in *R. sanguineus* in southern and western NM, with additional screening for *Ehrlichia chaffeensis* and *E. ewingii*. CDC funded. Advisor: Dr. Kathryn Hanley.

2021-2023

Undergrad Thesis, lead investigator. Study of malaria parasite spillover and parasite population dynamics in invasive bird species over time. Methods include mist netting of wild birds, light microscopy of blood smears, DNA extraction, PCR amplification, DNA sequence analysis, and R programming. University of Vermont Wildlife Pathogens Lab, advisor Dr. Ellen Martinsen.

2022-2023

S. aureus, MRSA, and *Salmonella* surveillance in House Sparrows. House Sparrows as sentinels for pathogens in cattle and backyard chickens. Collaboration with Dr. John Barlow (Dept Animal and Veterinary Sciences), and Dr. Andrea Etter (Dept Nutrition and Food Science), University of Vermont.

Summer – Autumn 2021

Screened large samples of Vermont mosquitoes for *Plasmodium* parasites via PCR with the intent of identifying the vector species of novel malaria parasite infections in the Common Loon. University of Vermont, advisors Dr. Ellen Martinsen and Alyssa Neuhaus, MS

Relevant Skills

<u>Field</u>	<u>Laboratory</u>
Mist netting of passerines	PCR and gel electrophoresis
CDC and gravid type mosquito trapping	qPCR
Species identification of mosquitoes	DNA extraction
Waterfowl handling and blood sampling	DNA sequence analysis
Tick collection and drag netting	Light microscopy
Species identification of ticks	Identification of avian blood parasites via light microscopy
	Bird necropsy

Awards and Grants

Fulbright Postgraduate Award: Fulbright Royal Veterinary College Award, United Kingdom, 2026

Distinguished Undergraduate Research (DUR) Thesis: Spillover of Malaria Parasites into Introduced and Invasive Bird Species. College of Agriculture and Life Sciences, University of Vermont, 2023

Mini Grant: \$800, Project title: Spillover of Protozoal and Bacterial Pathogens into and out of an Invasive Bird Species – A One Health Problem, University of Vermont, 2022

Sustainability Summer Fellowship: \$5000, Project title: The Impacts of Urbanization on the Spillover of Avian Malaria Parasites, University of Vermont, 2022

Gilman T. Dedrick Award: \$2500. College of Agriculture and Life Sciences, University of Vermont, 2022

Mini Grant: \$600. Project title: The Impacts of Urbanization of the Spillover of Avian Malaria Parasites, University of Vermont, 2022

Talks and Presentations

Guest Speaker: Biology Seminar, University of Vermont, April 2024

Guest Speaker: Ecological Parasitology, University of Vermont, September 2023

Undergraduate Thesis Defense: Biology Department Seminar Series, Spillover of Malaria Parasites into Invasive Bird Species, University of Vermont, April 2023

Poster Presentation: Student Research Conference, Spillover of Malaria Parasites into Invasive Bird Species, University of Vermont, April 2023

Poster Presentation: Northeast Natural History Conference, Spillover of Malaria Parasites into Invasive Bird Species, Burlington, VT, April 2023

Presenter: Vermont Disease Ecology Conference, Land Use and Pathogen Spillover in House Sparrows, Norwich University, VT, July 2022

Work Experience

Peace Corps Volunteer

Cameroon

Community Health Educator, STEM Teacher

June 2024 – May 2026

- Middle and high school teacher
 - Courses Taught: mathematics and human biology
- Project: School tree nursery
 - Construction of a school nursery for the germination and planting of fruit trees. 300+ fruit and decorative trees planted
 - Coffee and Cocoa cash crop trees grown as a dedicated revenue source for school activities
 - Nursery to serve as a location for student-focused real-world experiments and lessons for students
- Project: Diversification of income generating activities in school dropouts
 - Community driven cooperative of out-of-school youth engaged in agriculture to increase the diversity of income generating activities
- High school health club advisor
 - Promotion of club organization and management, first aid training, hygiene and disease prevention including cholera, malaria, and HIV/AIDS

Vaccine Testing Center, UVM

Burlington, VT

Clinical Research Coordinator

June 2023 – May 2024

- Startup, recruitment, enrollment, and maintenance of diverse clinical trial types, sponsors, and pathogens
 - Multi-site, industry sponsored, phase III clinical trial of VLA15 Lyme disease vaccine
 - National Institute of Health (NIH) sponsored phase II Dengue fever prophylactic trial
 - Double-blind phase I adjuvanted inactivated polio vaccine challenge trial
- Skilled in clinical trial recruitment, informed consent, Good Clinical Practice (GCP 2023), pathogen challenge trials, double-blind placebo controlled clinical trials, and participant management

Zadock Thompson Zoological Collection, UVM

Burlington, VT

Museum Intern

February 2023 – May 2023

- Imaging of small mammal ectoparasites via light microscopy and microscope camera. Images uploaded as a reference collection for open research use
- Small mammal specimen prep and skeleton articulation
- Museum restoration and cataloging of specimens

Leadership Experience

Microbiology & Pathogenesis

Burlington, VT

Teaching Assistant

Fall 2021

- Co-taught laboratory portion of basic clinical microbiology for nursing students

- Instructed bacterial culture, microscopy, biochemical tasting, identification, cause, transmission, and prevention of common pathogens such as *Staphylococcus aureus*, *E. coli*, and *Salmonella spp.*

UVM Beekeeping Club

Burlington, VT

President and Lead Beekeeper

September 2019 – May 2023

- Led the management of club activities for 500+ members.
- Oversaw the development, inspections, pest treatments, winterization, and tours of four large hives.
- Spearheaded collaborative efforts to increase membership and officer input. Expanded roles and increased the engagement opportunities for members.
- Mentored new beekeepers through promoting safe, fun, and exciting first-time, hands-on beekeeping and honey harvesting experiences.

One Health Club

Burlington, VT

Co-Founder

2022 – 2023

- Co-founded, advertised, and promoted cross-college undergraduate and graduate club for academic health science, public health, and infectious disease discussion and debate

Languages

French, Intermediate (ACTFL)

References

Ellen Martinsen, PhD
Lecturer, Vertebrate Collections Manager
University of Vermont Department of Biology
Ellen.Martinsen@uvm.edu
Relationship: Research Advisor

Joe Schall, PhD
Professor Emeritus
University of Vermont Department of Biology
Joseph.Schall@uvm.edu
Relationship: Research Advisor

Mary Claire Walsh, PA-C
Director
UVM Vaccine Testing Center
mary-claire.walsh@med.uvm.edu
Relationship: Former Supervisor